IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA
AT CHARLESTON

THE CITY OF HUNTINGTON,	:	Civil Action
Plaintiff,	:	No. 3:17-cv-01362
v.	:	
AMERISOURCEBERGEN DRUG CORPORATION, et al.,	:	
Defendants.	:	
CABELL COUNTY COMMISSION,	:	Civil Action
Plaintiff,	:	No. 3:17-cv-01665
v.	:	
AMERISOURCEBERGEN DRUG CORPORATION, et al.,	:	
Defendants.	:	

BENCH TRIAL - VOLUME 30
BEFORE THE HONORABLE DAVID A. FABER, SENIOR STATUS JUDGE
UNITED STATES DISTRICT COURT
IN CHARLESTON, WEST VIRGINIA

JUNE 28, 2021

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PROCEEDINGS had before The Honorable David A. Faber, Senior Status Judge, United States District Court, Southern District of West Virginia, in Charleston, West Virginia, on June 28, 2021, at 9:00 a.m., as follows:

THE COURT: Good morning, everybody. We're getting a taste of beastly Charleston summer weather today.

Before I start, Mr. Mahady, I went back and checked the testimony of Mr. Zerkle, I believe it was, based on your objection and you were right.

So what I'm going to do is I'm going to strike those portions of Mr. Colgrove's [sic] testimony, but I'm going to admit the two documents, 415271 and 413741 under 803(8). So that's how I'm going to handle that.

MR. MAHADY: Thank you, Your Honor.

THE COURT: Now, are we ready to go this morning?

MS. SINGER: We are, Your Honor. Plaintiffs call Dr. Caleb Alexander.

THE COURT: Okay.

THE CLERK: Please state your name.

THE WITNESS: George Caleb Alexander.

THE CLERK: Thank you.

GEORGE CALEB ALEXANDER, PLAINTIFFS' WITNESS, SWORN

THE CLERK: Thank you. Please take a seat.

THE COURT: Good morning, Dr. Alexander.

THE WITNESS: Good morning.

DIRECT EXAMINATION

BY MS. SINGER:

Q. Dr. Alexander, could you start this morning by introducing yourself to the Court?

A. My name is George Caleb Alexander.

Q. And what is your profession?

A. I'm a Professor of Epidemiology and Medicine, and I'm also a practicing general internist.

Q. And do you have a specialty within your field, your academic field?

A. Yes. I'm a pharmacoepidemiologist. And pharmacoepidemiologists study the use and safety and effectiveness of prescription drugs in large populations.

Q. And, Dr. Alexander, did you prepare a set of slides to assist in your testimony today?

A. Yes, I did.

Q. And would those slides -- do those slides also cover your background and qualifications?

A. Yes, they do.

Q. And would those slides assist in your testimony?

A. Yes, they would.

MS. SINGER: Your Honor, may we publish them?

THE COURT: Yes.

BY MS. SINGER:

Q. All right. This is Demonstrative 270.

Turning to Slide 2, Dr. Alexander, can you tell us about your educational background?

A. Sure. I attended university, college for two years at Oberlin College in Ohio, and then completed my training at the University of Pennsylvania.

I attended medical school at Case Western Reserve University in Cleveland, and subsequently completed a Master's of Science at the University of Chicago.

Q. All right. And in addition to your employment as a Professor of Epidemiology and Medicine at Johns Hopkins, do you have other affiliations or employment?

A. Yes, I do.

Q. And what are those?

A. Well, I mentioned my role as a Professor of Epidemiology and Medicine at Johns Hopkins. I'm also the founding co-director of the Johns Hopkins Center for Drug Safety and Effectiveness. And I'm Principal Investigator of the Johns Hopkins Center of Excellence in Regulatory Science and Innovation.

I noted that I'm a practicing general internist. And I also am owner and co-founder of a consultancy that's separate and distinct from my role at Johns Hopkins, Monument Analytics.

Q. Dr. Alexander, are you a published author as well as a Professor and other affiliations?

A. Yes, I am.

Q. And did you prepare a slide -- I'm sorry. Before we get to your publications, did you prepare a slide that summarizes your licenses, affiliations, and publications?

A. Yes, I did.

MS. SINGER: Your Honor, may we publish the next slide, please?

BY MS. SINGER:

Q. And, Dr. Alexander, can you describe to the Court your licenses and other affiliations?

A. Of course. I am boarded by the American Board of Internal Medicine, and also have a DEA controlled substance license.

I'm a former Chair and current member of the Food and Drug Administration's Peripheral and Central Nervous System Committee, and a former member of OptumRx's National Pharmacy and Therapeutics Committee.

Q. And I prematurely asked you if you were a published author. Have you -- can you describe your, your publications generally, the number, et cetera?

A. Of course. I've authored or co-authored more than 325 scientific articles, editorials, and book chapters. I'm the current or former editor or deputy editor of nine journals.

And about 50 of my peer-reviewed publications have focused on the opioid epidemic.

Q. Now, are there certain publications related to opioids that you thought would be especially relevant to highlight for the Court?

A. Yes, there are.

Q. And did you prepare a slide to summarize those?

A. Yes, I did.

MS. SINGER: Your Honor, may we publish?

BY MS. SINGER:

Q. And, Dr. Alexander, does this represent that list of selected publications?

A. Yes, it does.

Q. And could you briefly walk the Court through those articles?

A. The first article was published -- the first article entitled "The Opioid Epidemic: From Evidence to Impact --" I should correct myself. This was not a peer-reviewed article but, rather, a report that was published and produced by a large number of faculty and other scientists in 2017 and focused on providing comprehensive evidence-based solutions that could be implemented to address the opioid epidemic.

The second is a peer-reviewed article entitled "The Prescription Opioid and Heroin Crisis: A Public Health

Approach to an Epidemic of Addiction." And this was published in the Annual Review of Public Health and provided a broad public health approach to understanding the harms that have occurred and how they can best be addressed.

The third is entitled "The Relationship Between High-Risk Patients Receiving Prescription Opioids and High-Volume Opioid Prescribers." And this provides an example of our work using large datasets to understand the epidemiology of prescription opioid use.

And the last entitled "The Evolving Overdose Epidemic: Synthetic Opioids and Rising Stimulant-Related Harms" was published as, again, a comprehensive review of the evidence base governing the evolving opioid epidemic and, as well, changes in the use of stimulants such as methamphetamine in the United States.

Q. And, Dr. Alexander, beyond these four publications, have you also prepared a slide that describes the general topic of some of your opioid-related articles?

A. Yes, I have.

MS. SINGER: And, Your Honor, may we publish that slide?

THE COURT: Yes, you may.

BY MS. SINGER:

Q. And, Dr. Alexander, can you again briefly walk the Court through some of the other general areas of

investigation related to opioids that you've been involved in?

A. Well, the first is a series of articles examining the epidemiology of medication assisted treatment. That is use patterns of medication assisted treatment. These are FDA approved products for the treatment of opioid addiction.

The second example, analyses of prescription opioid use in the United States, are a series of articles examining patterns of prescription opioid use in different sub populations, as well as nationally representative populations.

The last that I'll highlight are a number of papers looking at the impact of COVID-19 on the opioid epidemic, a matter of great importance to communities including Cabell County and the City of Huntington.

Q. And, Dr. Alexander, I know you referenced your use of data. But have these research and publications involved the analysis of large and complex datasets?

A. Yes, they have.

Q. And you mentioned monographs, I think you called them, that were issued by the Bloomberg School of Public Health at Johns Hopkins regarding solutions to the opioid epidemic. Can you tell the Court about those in a little more detail?

A. Of course. Well, my interest in participating in that initiative was to assemble faculty to provide for

communities around the country recommendations regarding steps that they could take to address the harms occurring in their communities.

And, so, we assembled faculty from a great number of disciplines and worked together to synthesize the evidence base and to make recommendations regarding specific steps that they could take.

Q. Now, have you also recently published an article that modeled the opioid epidemic quantitatively?

A. Yes, I have.

Q. And what is that article?

A. I, I don't know that I can quote the precise title, but it's an article reporting the results of an epidemiologic model called Apollo that allows for us to understand the complex interrelationships of different populations that have been impacted by the epidemic.

THE COURT: Mr. Hester.

MR. HESTER: Your Honor, may I object?

This, this paper that Dr. Alexander is referring to is one that was not on his reliance materials. It's a paper that he has written, but it was not on his reliance materials. It was not disclosed to us. He has supplemented his report twice, I believe, since he filed it in last August.

The paper that he's referring to was accepted for

publication last August. And by right, if Dr. Alexander was going to refer to it and rely upon it in his testimony, it should have been included in his report and in his reliance materials. So we object to the use of this now.

THE COURT: Ms. Singer.

MS. SINGER: Your Honor, Dr. Alexander is simply describing his qualifications and background in the area. The report which -- the article, I'm sorry, which publishes certain works he's done that is relevant is not actually going to be the topic of his direct examination. But I do think it's relevant in describing his background and experience on the precise topic that he's going to be testifying on.

Again, we have no intention of going into the subject of the article beyond its general subject area.

THE COURT: Do you still object, Mr. Hester?

MR. HESTER: Yes, we do, Your Honor. We think he's relying on this to bolster his opinions and it was not disclosed during -- in his expert report and it's not been disclosed to us since.

MS. SINGER: It was also on his disclosures yesterday, Your Honor. But, again, this is offered simply to explain to the Court his very deep and extensive experience in looking at models related to opioids.

THE COURT: Well, his very deep and extensive

experience is coming through loud and clear without reference to his report, Ms. Singer, so I'm going to sustain the objection.

MS. SINGER: Understood, Your Honor.

BY MS. SINGER:

Q. Dr. Alexander, have you testified before government bodies on topics related to the opioid epidemic?

A. Yes, I have.

Q. And in what context have you testified?

A. Well, I've testified in front of the U.S. House of Representatives, the U.S. Senate, the Food and Drug Administration, the National Academies of Science, the National Black Caucus, and the National Governors Association.

Q. And --

MS. SINGER: Your Honor, may I approach? I'm showing P-42132.

BY MS. SINGER:

Q. And, Dr. Alexander, without dwelling too much on your deep and extensive experience, can you tell us what the document in front of you is?

A. Well, this is my proposed abatement plan for Cabell County and the City of Huntington. It's my expert report. And assuming that it comes with the redress models that I think we'll get to in time, this is the product, the work

product that I've developed for the Court.

Q. So I think, Dr. Alexander, if you look behind the cover, it is the CV that was attached to your expert report; is that correct?

A. Yes, it is, and I apologize.

Q. It was a misleading cover page.

So, Dr. Alexander, does this represent the CV that was attached to your expert report?

A. Yes, I believe it does.

Q. And does that accurately reflect your background and qualifications?

A. Yes, it does.

Q. Now, you can put that aside. Have you served as an expert in other opioid litigation?

A. Yes, I have.

Q. And without going into all of them, can you provide the Court with some examples of cases and entities for which you've served as an expert related to opioids?

A. I've served as an expert for MDL Track 1 and Track 3. I've served as an expert for cases on-going in California, and for cases in the State of Washington and New Hampshire -- or, I'm sorry -- Washington and Rhode Island.

Q. Now, have you provided expert services to the pharmaceutical industry in other matters unrelated to opioids?

A. Yes, I have.

Q. And in what general context, Dr. Alexander?

A. Well, I co-founded the Monument Analytics, and that's a healthcare consultancy. And our clients include pharmaceutical companies and device and diagnostic manufacturers. And I've participated in that work that is separate and distinct from my involvement in opioid litigation.

Q. Now, has your testimony in any of the opioid-related cases you just described been excluded?

A. No, it has not.

Q. And have you ever testified in court before?

A. No, I have not.

Q. All right.

MS. SINGER: Your Honor, I would offer Dr. Alexander as an expert in epidemiology and opioid abatement intervention.

THE COURT: Any objection?

MR. NICHOLAS: No objection.

MR. HESTER: No objection, Your Honor.

MS. HARDIN: Your Honor, no objection to that. I will just note for the record that we obviously have a legal disagreement about the use of the word "abatement." I'm just going to lodge that as a standing objection today.

THE COURT: All right. I find that Dr. Alexander

is an expert in the field of epidemiology and opioid abatement intervention.

MS. SINGER: Thank you, Your Honor.

BY MS. SINGER:

Q. Now, Dr. Alexander, did you submit an expert report in this case? I think you've indicated as much.

A. Yes, I did.

Q. And what was the subject of your expert report?

A. Well, the focus was on identifying evidence-based programs and services that could be implemented by Cabell County and the City of Huntington, as well as to estimate the populations in need of such services and, in some instances, to identify the unit costs of specific services that could be rendered.

Q. And were you also asked to determine whether there is an opioid epidemic in Cabell County and the City of Huntington?

A. Yes, I was.

Q. Now, you mentioned the unit cost a moment ago. Does another expert actually calculate the total cost of the abatement plan you laid out?

A. Yes, that's the case.

Q. Now, in forming your opinions in this case, did you conduct research and analysis specific to Cabell County?

A. Yes, I did.

Q. And was the methodology you used in conducting that research and analysis consistent with well-accepted scientific standards?

A. Yes, I believe it was.

Q. And was your methodology laid out in your report?

A. Yes, it was.

Q. Now, did you analyze data as part of your research and analysis?

A. Yes, I did.

Q. And did you look at any datasets specifically related to Cabell County?

A. Yes, I looked at several.

Q. Now, did you prepare a slide that summarized some of those datasets?

A. Yes, I did.

Q. And would that slide assist in your testimony this morning?

A. It would. Thank you.

MS. SINGER: Your Honor, may I publish?

THE COURT: Yes.

MS. SINGER: Thank you. Slide 6.

BY MS. SINGER:

Q. Dr. Alexander, does Slide 6 represent a summary of some of the data you reviewed in preparing your report and developing an abatement plan for Cabell County and

the City of Huntington?

A. Yes, it does.

Q. And can you describe briefly the various datasets that are listed here and that you used in your report?

A. Yes. Well, the Treatment Episodes Dataset and National Survey on Drug Use and Health represent federally sponsored surveys of addiction, treatment facilities, and individuals respectively.

The CDC WONDER data represents information about overdoses, fatal overdoses that have occurred.

I used a number of data sources from the West Virginia Department of Health and Human Services, including information about emergency room overdoses, naloxone administration, EMS responses for suspected overdoses, and other information that was available on the West Virginia dashboard.

And, finally, I used information from the U.S. Census.

Q. Now, is each of those datasets you just described routinely relied upon by epidemiologists?

A. Yes. These datasets need to be used and fit for purpose. So -- but, yes, they are each invaluable, I would say, for epidemiologists working to understand dimensions of the opioid epidemic and, and many other matters.

Q. And are they reliable data?

A. Yes, they are. Again, reliability isn't a static

concept of a dataset so much as the application of a dataset in a way that is suitable for a specific scientific question. But, yes, I would say that they can be used in ways that produce reliable and helpful information.

Q. Now, beyond analyzing these and other datasets, did you and your staff take other steps to inform your opinions in this case?

A. Yes. I took many.

Q. And can you describe those for the Court generally?

A. Well, in addition to using these data, I spoke with a number of experts on the ground to understand their perspectives.

I reviewed reports, some issued by federal or state or local sources. I triangulated information from these sources.

And I also used information, of course, from an enormous volume of peer-reviewed literature, and also spoke with other experts, colleagues of mine in order to address specific questions that I thought remained open.

Q. And did you also review documents produced in this litigation and deposition testimony?

A. I did.

Q. Now, did you prepare a slide that summarized the local experts with whom you or your team spoke to inform your report?

A. Yes, I did.

Q. And would that slide assist your testimony?

A. Yes.

MS. SINGER: Your Honor, may we publish, please?

THE COURT: Yes.

BY MS. SINGER:

Q. Looking at Slide 7, Dr. Alexander, does this describe the local stakeholders with whom you and your team spoke in developing your report and opinion?

A. Yes, it does.

Q. And could you describe briefly some of those individuals?

A. Sure. Well, you know, as, as the slide reflects, I spoke with individuals reflecting a large number of different local stakeholders, individuals from the schools, from the treatment system, from the Cabell/Huntington Health Department, the Fire Chief, and others.

And, so, these conversations were really important in helping me to be confident that I understand the fabric of the local community.

Q. Now, and some of these conversations you had and some were had by your staff; is that right?

A. Yes, that's correct.

Q. Now, will you be opining today on the cause of the opioid epidemic in Cabell County and the City of Huntington?

A. No, I will -- no, I will not.

Q. And will you be opining on defendants' conduct that contributed to the opioid epidemic?

A. No, I will not.

Q. And will you be opining or offering views on any other entities or individuals as they relate to contributing to the opioid epidemic?

A. No, I will not.

Q. Okay. Let's turn to your opinions, Dr. Alexander.

Did you form an opinion as to whether there's currently an opioid epidemic in Cabell County and the City of Huntington?

A. Yes, I did.

Q. And did you rely on the sources that you described earlier in forming that opinion?

A. Yes, I did.

Q. And what is your opinion?

A. I believe there is, there is abundant evidence of an on-going epidemic, an opioid epidemic.

Q. And can you describe how you characterize that epidemic?

A. Well, I mean, there's overwhelming evidence regarding the nature of continuing harms.

Historically, of course, there has been a flood of prescription opioids into the community, enough to provide

every adult and child 400 tablets in a year, I understand, at its peak; overdose -- rates of fatal overdose that for a community of less than 100,000 are off the charts; rates of emergency room visits for overdoses and EMS calls in the field that again are, are off the map relative to most communities in the United States; a burdened child welfare system; a school system where the school experts and authorities that I spoke with clearly identified the strains that the opioid epidemic has placed on the schools; rates of Neonatal Abstinence Syndrome that are far above most communities in the United States; umbilical cord blood samples indicating maternal opioid exposure of as high as 16 or 17 percent of pregnant mothers to deliver.

And, so, the evidence is -- just goes on and on. But those are some of the examples.

Q. And is it your opinion that the epidemic still exists now?

A. Yes, yes.

Q. And did you prepare a slide, Dr. Alexander, that shows some examples of the kinds of evidence you just described?

A. Yes, I did.

Q. And would that slide also help your testimony?

A. Yes.

MS. SINGER: Your Honor, may we publish?

THE COURT: Yes.

MS. SINGER: Slide 9, please.

BY MS. SINGER:

Q. And, Dr. Alexander, is this the slide that you prepared?

A. Yes, it is.

Q. And can you describe the signs that you pulled out in this slide?

A. Sure. And, again, these are three of many, many indicators that I think unequivocably demonstrate the on-going harms.

But, for example, 137 individuals dying of overdose in 2018. I estimate that approximately 7,900 individuals have opioid use disorder which is a -- if you look at the total population of the community is 8 or 9 percent of the population.

Again, it's hard to find communities in the United States that have this many individuals with opioid addiction.

The, the statistic regarding infants I've already provided regarding umbilical cord blood samples, but I think that that underscores the gravity of the situation.

Q. Now, is the epidemic that currently exists in Cabell/Huntington now a heroin and fentanyl epidemic?

A. It's an opioid epidemic. I mean, prescription opioids and heroin and fentanyl are two sides of the same coin.

They have the same effects on the body. They produce the same type of physical dependency and the same risks of addiction.

So while the community in the early stages of the epidemic was predominantly flooded with prescription opioids and while now heroin and illicit fentanyl have taken on heightened concern, I would characterize the epidemic as an opioid epidemic, not one of one particular type of opioid or another.

THE COURT: Let me interrupt you and ask you a question.

With regard to the umbilical cord statistic, is every umbilical cord, if you know, tested, every single one?

THE WITNESS: That's a great question. I don't know the answer for that. I would assume -- I would assume to derive the statistic that that was the case, but I don't know if that's the case.

THE COURT: I think that, that percentage might not be as shocking if -- depending on the number that are tested. That's why I asked the question.

Go ahead, please, Ms. Singer.

BY MS. SINGER:

Q. And, Dr. Alexander, did you rely on information specific to Cabell and Huntington in describing or characterizing the nature of the epidemic that exists

here?

A. Yes, I did.

Q. Now, have the programs that have been put in place by Cabell and Huntington resolved the epidemic that exists here?

A. No, they have not. They have been important, and I hope that I'll have an opportunity to speak to that, but they haven't resolved the epidemic.

Q. And how do you know that?

A. Well, there are any number of signs. I mean, the, the sorts of on-going morbidity and mortality that we've just discussed I think reflects that the epidemic persists to this day.

Q. Now, in your professional opinion, Dr. Alexander, are the impacts that you've just described of the opioid epidemic in Cabell and Huntington reasonably certain to continue?

A. Yes.

Q. All right. Did you also develop a plan to abate those harms associated with the opioid epidemic in Cabell and Huntington?

A. Yes, I did.

Q. And I should say, Dr. Alexander, not just the harms, but the epidemics themselves; is that correct?

A. Yes, it is.

Q. Now, in your professional opinion, is the abatement plan you developed necessary to alleviate the opioid epidemic that exists in those communities?

A. I believe it is necessary.

Q. Now, does the plan address the health problems related to opioid use in addition to opioid addiction and mortality itself?

A. Yes, it does. I mean, the plan is a multi-faceted plan, and treatment of opioid addiction is an important part of it. But the plan also includes many interventions that will help to address complications that individuals with opioid addiction may experience such as hepatitis C or HIV and, and overall to support a treatment system that can allow these individuals with opioid addiction to, to resume healthy and, and productive lives.

Q. And, so, these other harms that you've described like hepatitis C, why are those addressed as part of your plan?

A. Because my plan is intended to address the, the opioid epidemic. And when I examine issues such as the population with hepatitis C or HIV, I'm focusing on that subset of all people with those diseases that, that I have -- that based on my epidemiologic and professional experience I believe have them because of the opioid epidemic.

Q. Now, can you describe the process you used to develop the abatement plan?

A. Yes. I used information from a number of different sources that I've already discussed. And I, I did this iteratively. In other words, I spoke with local experts and my team members spoke with local experts. I reviewed a vast amount of peer-reviewed literature.

Of course, I began with the knowledge that I already possessed based on my professional training and experience. I reviewed monographs and white papers and reports from federal, state, and local sources. And I, I reviewed different databases, different data sources that we've discussed.

And it's an iterative process. It's not directly a linear process. It's iterative in the sense that, that through examining these different sources of information, I was able to make estimations both regarding the types of programs and services I think are needed, and also the number, the size of the populations that I think need such services.

Q. And, Dr. Alexander, you referred to reports that you reviewed; correct?

A. Yes.

Q. And did you prepare a slide that listed some of the reports you looked at in forming the abatement plan?

A. Yes, I did.

Q. And would that slide help your testimony?

A. Yes, it would.

MS. SINGER: Your Honor, may we publish?

BY MS. SINGER:

Q. And, Dr. Alexander, this slide on Reports on Responses to the Opioid Epidemic, does this list some of the reports that you consulted in developing the abatement plan for Cabell and the City of Huntington?

A. Yes, it does.

Q. And can you describe generally the subject and nature of these reports?

A. Sure. Well, the first was a report produced by President Trump's administration and led by Chris Christie. And this came out about the time of the 2017 report that I helped to co-lead at Johns Hopkins.

And there was remarkable alignment between the recommendations of the Christie commission and the recommendations in this Johns Hopkins report.

The City of Solutions and the Mayor's strategic reports and the resiliency plan, these were additional reports that were helpful in understanding, again, the perspective of the local community, of leaders from the local community that have spearheaded efforts to date, and of planning for the future and what these different parties believed was necessary in planning for the future.

Q. And did you find any consistency between your

recommendations in the abatement plan and the recommendations in these reports?

A. Yes. I mean, they're highly consistent. The -- my -- I used these to inform my general judgments. I didn't sort of take one of these and then add to it. But the recommendations that I make and the types of services and programs that I suggest are, are throughout all of these.

And the reason why is because there's clear consensus about what needs to be done. There's just -- fortunately, there's just not a lot of controversy among the public health community regarding -- and the scientific community regarding the importance of things like, like reducing the over-supply of prescription opioids, ramping up treatment, distributing naloxone, these types of programs.

Q. Now -- and before we turn to the plan itself, Dr. Alexander, do you have an opinion as to whether the opioid epidemic in Cabell and Huntington can be abated?

A. I, I do.

Q. And what is that opinion?

A. Well, I think it can. I think there's clear evidence that it can.

Q. And did you prepare any slides that, that mapped the programs that you discussed earlier looking at in Cabell and Huntington into your abatement plan?

A. Yes, I did.

Q. And would those -- would that, would that slide assist your testimony?

A. Yes, it would.

MS. SINGER: Your Honor, may we publish Slide 10, please?

THE COURT: Yes, you may.

BY MS. SINGER:

Q. Dr. Alexander, does this represent some of the programs that you examined in developing your abatement plan?

A. Yes, it does.

Q. And can you explain to the Court what those programs are and how those mesh with the plan that you developed?

A. Of course. PROACT, a very important treatment program in the community sponsored by a number of organizations and allowing for ambulatory and in a small number of cases intensive outpatient treatment for individuals with opioid addiction.

MARC and MOMS, a vital program for women that are pregnant or postpartum that have opioid addiction.

The neonatal therapeutic unit and Lily's Place are programs to support the care of children with Neonatal Abstinence Syndrome both immediately after birth and subsequently.

The KIDS program as well is designed and geared to

address the needs and special needs of children that may be adversely impacted by opioid -- by the opioid epidemic.

The Quick Response Team is a multidisciplinary team that's equipped to get out to people that have overdosed within 72 hours of overdose, and includes a counselor or peer recovery coach, a healthcare provider, a paramedic or someone with similar training, at times a faith-based -- member of a faith-based community. And this sort of team helps provide a bridge to people to get them into treatment after an overdose.

The Drug Court and WEAR program -- the WEAR program is a separate tract within the Drug Court for women who are commercial sex workers and who have a history of trauma.

The harm reduction initiatives from the community are very important as well. This includes syringe exchange and naloxone distribution, and well as fentanyl testing.

Q. And in your opinion, Dr. Alexander, are these and other current programs in Cabell and Huntington sufficient to address the opioid epidemic that exists?

A. No, they're not.

Q. And what do you base that opinion on?

A. Well, I think there's any number of lines of evidence.

First, the feedback that I've received from many experts on the ground;

Second, the fact that there historically have been wait

lists for some of these programs such as treatment programs;

Third, many of these programs, or some of them may be at or near capacity;

Fourth, even if there's an empty bed, there's an important need to increase demand for these programs and services.

So Lily's Place may have 18 slots. Maybe it should have 36 or 48 or 72.

The PROACT program, it's wonderful that up to 700 slots, plus or minus, are available for treatment. But there's a need to significantly scale up the services and programs that are offered if the epidemic is to be successfully abated.

Yet, other lines of evidence include the fact that funding is unstable. And you can't do this on a month-to-month basis of not knowing whether there's going to be funding, you know, after the first of the year for a program.

And the last and probably the most important data point I would think for members of the community is simply the number of deaths that continue to occur and the number of people that continue to have active addiction.

So I don't think that there's a -- I think that it's pretty clear that the current programs, while important and while the local community deserves credit for them, that

they're insufficient to abate the opioid epidemic.

Q. Now, Dr. Alexander, I think the slide may preview it. But can you describe the categories of intervention that are included in the abatement plan?

A. Yes. In general, the sorts of recommendations that I've suggested fall into one of four categories: Prevention, treatment, recovery, and special populations.

Q. All right. And is that described on the slide that's now appearing on the screen, Number 11, Dr. Alexander?

A. Yes, it is.

Q. So let's start on the plan itself by focusing on I think the first circle which is -- I'm sorry -- the first circle which is the green prevention circle. Can you describe generally the kinds of programs that fit within this bucket?

A. Yes. Prevention focuses on preventing further cases of opioid addiction, as well as helping to ensure that those that have active addiction that aren't yet in treatment don't die before they get access to treatment.

Q. Now, did you prepare a slide that describes the subcategories of interventions within the prevention category?

A. Yes, I did.

Q. And would that slide assist your testimony?

A. Yes.

MS. SINGER: Your Honor, may we publish the next Slide 12, please?

BY MS. SINGER:

Q. And, Dr. Alexander, can you describe briefly the kinds of interventions that fall in each of these categories that you have determined are necessary in Cabell and Huntington?

A. Health professional education refers to special programming for healthcare providers, not just about the over-supply of opioids and about the appropriate treatment of pain, but also about the appropriate identification and management of people with opioid addiction.

Patient and public education is focused on ensuring that patients and the general public understand the evidence, understand the science, that they know that opioids have serious and not uncommon risks, that they know that the evidence for opioids for chronic pain is, is limited. And, so, those educational initiatives are important.

Safe storage and disposal is important because we know that as the volume of opioids in a community increases, as the supply in the community increases, so too does the risk of unsafe storage or failure for drug disposal. So those initiatives are important.

Community prevention and resiliency is important

because this community's fabric has been, has been torn, has been damaged, has been harmed by the opioid epidemic. And, so, community prevention and resiliency programs give the community a central gathering space, a space for educational programming.

Harm reduction is important because not everybody is immediately ready to enter into treatment. And the principles of harm reduction are posited on the idea of meeting people where they were at -- where they are at and ensuring that they, that they have available methods to minimize the risk of overdose.

And surveillance, evaluation, and leadership is important because there has to be a mission control to this plan. Surveillance and evaluation allow for iterative refinement and fine-tuning of the plan over time as the epidemic continues to evolve.

And leadership is important because the governance of this overall plan will be vital. And I think that the community has what it takes.

Q. And, Dr. Alexander, can we focus for a minute on the first category, the health professional education.

Can you describe the kinds of interventions and the doctors with whom -- to whom that education is directed?

A. Yes. Health professional education can take a number of forms, but one of the most important is targeted outreach

to specific prescribers.

So in my plan I suggest identifying prescribers that account for the highest volume of opioid prescribing and to conduct academic -- what's called academic detailing; essentially outreach to these prescribers to provide unbiased, non-commercially influenced sources of information about the optimal management of pain, as well as the identification and treatment of opioid addiction.

Q. And are there certain types of doctors or practices that in addition to the general education would be provided to particular prescribers?

A. Yes. I do think general educational programming is important, again that's not influenced and biased by commercial sources and that provides clinicians with the information they need to provide evidence-based care.

But I also suggest identifying a subset of doctors that may account for a disproportionate volume of opioids on the market and to target them with specific messaging.

Q. And, Dr. Alexander, have you conducted any research specific to high-volume prescribers that informed this recommendation?

A. Yes, I have.

Q. And what generally were your findings?

A. Well, my work and that of many other parties suggest that opioid prescribing is skewed or concentrated so that

there are a subset of doctors that prescribe a disproportionate volume of opioids on the market.

Q. Now, is there evidence that these types of interventions are effective with healthcare providers?

A. Yes, there's abundant evidence, enough so that there have been what are called systematic reviews. In other words, there have been syntheses of individual studies that provide a more comprehensive and I believe a confident appraisal than can be drawn from any single study alone.

Q. Now, in your report and abatement plan do you discuss the kinds of messages that should be delivered to healthcare providers?

A. Yes, I do.

Q. And did you prepare a slide that laid out some of those messages?

A. Yes, I did.

Q. And would that slide assist your testimony?

A. Yes.

MS. SINGER: Your Honor, may we publish the next slide, please?

BY MS. SINGER:

Q. And, Dr. Alexander, does this slide list the various messages that you think ought to be conveyed to healthcare providers?

A. This does contain many messages that I think are

important.

Q. And what is the source of those messages?

A. The Center for Disease Control and Prevention.

Q. And do you -- do you have the title of that as a relevant publication on this slide?

A. Yes, I do. It's the CDC Guideline for Prescribing Opioids for Chronic Pain - United States, 2016.

Q. And, Dr. Alexander, let's again focus on the first item on the list. What is the first message that you think ought to be conveyed to providers?

A. Opioids are not the first-line or routine therapy for chronic pain.

Q. And why is that a message that ought to be delivered to healthcare providers?

A. Well, it's a vital message because, again, opioids have been vastly oversupplied in the community. And one reason for this is that they've been used as first-line and as routine therapy for chronic pain in far too many settings.

So this is an evidence-based assertion and highlights the fact that opioids are not -- that opioids have very real and not uncommon risks. And, also, that there's not a lot of evidence to support their effectiveness for the treatment of chronic pain such as knee pain, back pain, headaches, other types of arthritis and the like.

Q. And is this a subject, meaning the, the use and

efficacy of opioids, on which you have published?

A. Yes, it is.

Q. And can you recall any of the studies in your report that relate to that topic in particular?

A. Well, I believe I published a review in the annuals of public health, or the annals of public health, annual reviews of public health that, that we previously described and that included an assessment of the evidence to support the use of opioids or the lack thereof.

MS. SINGER: Your Honor, may I approach?

THE COURT: Yes. We're going to have to take a break early and change out court reporters. So we'll be in recess for about 10 minutes.

You can step down, Doctor.

THE WITNESS: Thank you.

(Recess taken at 9:49 a.m.)

MS. SINGER: May I, Your Honor?

THE COURT: Yes, you may.

MS. SINGER: All right.

BY MS. SINGER:

Q. Dr. Alexander, before the brief recess, I had just handed you P-43586. Do you have that in front of you?

A. Yes, I do.

Q. And do you recognize that document?

A. Yes.

Q. And what is the document?

A. It's a peer-reviewed paper that I published with colleagues entitled The Prescription Opioid and Heroin Crisis: A Public Health Approach to an Epidemic of Addiction.

Q. And is this the study you were referring to in the moments before we took a recess?

A. Yes, it is.

Q. And where was this study published, if you didn't say that already?

A. In the Annual Reviews of Public Health.

Q. Is that a peer-review journal?

A. Yes, it is.

Q. And is the Annual of Public Health considered to be a reliable authority in your field?

A. Yes, it is.

Q. What other types of information are published in that journal?

A. Well, the annual reviews typically publishes articles examining looming or large public health problems. Gun violence, obesity, diabetes, other matters where public health tools and approaches have important -- have an important contribution to addressing the concern.

Q. And in this study that you've just referenced, did you discuss the reference regarding the use of opioids for

chronic pain?

A. Yes, I did.

Q. And I would like to direct you to Page 4, moving on to Page 5. Can you read what you've written there regarding the evidence for use of opioids in chronic pain?

A. Is there a slide prepared?

Q. There's not a slide. I think we can pull it up. If you look at the very bottom of the page, Dr. Alexander, the last sentence there, in fact, high quality?

A. Thank you. In fact, high quality long-term clinical studies demonstrating the safety and efficacy of OPRs, or opioid pain relievers, for chronic non-cancer pain have never been conducted. Surveys of patients with chronic non-cancer pain receiving long-term OPRs suggests that most patients continued to experience significant chronic pain and dysfunction.

Q. And why don't you go ahead and finish out that paragraph, please?

A. The CDC and some professional societies now warn clinicians to avoid prescribing OPRs for common chronic conditions.

Q. And is that what you wrote in the study that was published in the Annual of Public Health?

A. Yes, it is.

Q. And do you still agree with that statement today?

A. Yes, I do. I mean, I believe there have been -- I'm aware of at least one, for example, trial that compared -- that I believe has been published since this was -- since we published this article and it compared prescription opioids with non-opioid analgesics and found that they did similarly in managing, for example, people with knee arthritis, but I think in general, yes, I agree with this statement.

Q. Now, Dr. Alexander, in formulating that first recommended message, if we can go back to that slide, did you consider whether there's a tradeoff between treating chronic pain and addressing addiction?

A. I did and there is no tradeoff. I mean, one of the things that I think has -- one of the misconceptions has been that there's somehow a conflict between reducing our overreliance on opioids and improving quality of care for people that have pain. There's no conflict between these two goals. They're achievable at the very same time.

Q. All right. Dr. Alexander, let's turn to now the second circle within the abatement plan, the prevention category. Is there evidence -- I'm sorry.

Before we move on to the treatment category, is there evidence that the programs that you recommend for the prevention category of the abatement plan beyond healthcare provider education that you've just discussed are affected?

A. Yes. There's an abundant volume of evidence. There's

a mountain of evidence.

Q. And did you prepare a slide that provides examples of the type of evidence that supports the efficacy of these interventions?

A. Yes, I did.

MS. SINGER: Your Honor, may we publish that slide?

THE COURT: Yes.

MS. SINGER: Slide 14. Terrific.

BY MS. SINGER:

Q. Dr. Alexander, is that the slide you prepared?

A. Yes, it is.

Q. And can you describe some of the evidence supporting the prevention element of the abatement plan?

A. Well, these provide just two examples, but the First Community Prevention and Resiliency Programs, such as Communities That Care, have been shown to have a positive return on investment, $5.30 in reduced crime and criminal justice costs saved for every dollar invested.

As a second example, screening for HIV and Hepatitis C enables early treatment, which can reduce transmission and help avoids complication like AIDS or Cirrhosis.

Q. All right. So now, let's move on from prevention to the next category, which is treatment. What is included in the treatment category within the abatement plan?

A. The treatment category includes services and programs to provide direct treatment for people that have opioid addiction, as well as to treat some of the collateral or downstream harms that have occurred because of addiction such as HIV and Hepatitis C.

Q. And did you prepare a slide that summarizes the elements of the treatment program laid out in your expert report?

A. Yes, I did.

Q. And would that slide assist your testimony?

A. It would.

MS. SINGER: Your Honor, may we publish the next slide?

THE COURT: Yes, you may.

BY MS. SINGER:

Q. Dr. Alexander, is this the slide you prepared to lay out the elements of the treatment plan?

A. Yes, it is.

Q. And can you briefly describe each of those subcategories of intervention?

A. Yes. Well, connecting individuals to care is important because there are gaps in care and you need to reach people at the point when they're most ready to enter treatment and to make it easy for them to do so. So, connecting individuals to care includes programs or services such as

Quick Response Teams or bridge programs that may bridge people from Emergency Departments to treatment settings.

Treatment for Opioid Use Disorder, I think, speaks for itself and there's an enormous need. And this is a highly treatable condition.

Managing complication of Opioid Use Disorder is important for the reasons that we've discussed.

Workforce Expansion and Resiliency is important because, as I already noted, it's not just about being sure that we can maintain Lily's Place, or Project Hope, or the PROACT program at the current levels. We need to hire up and scale up and that will require workforce expansion.

And taking care of the people that are working in these settings. I think that the Court has heard, and it certainly was abundantly clear to me speaking with experts on the ground, the toll that the epidemic has taken on first responders and others who are working and we need to help the helpers.

The last point is about naloxone distribution and training and this is vital because we know that naloxone is highly successful in reversing overdoses and giving people a second shot.

Q. And, Dr. Alexander, why do you include treatment in the abatement plan?

A. Well, treatment works. I mean, if -- and, you know,

treatment -- we have highly safe and effective medicines to treat opioid addiction. With treatment, we can save many lives and help people return to happy, successful, productive lives in society. Without treatment, hundreds and thousands over the years will die.

So, treatment isn't just the right thing to do. It's also -- makes good economic sense. We know that there's a positive return on investment when we invest in the treatment infrastructure. So, there are many reasons to -- to treat Opioid Use Disorder.

We can also disrupt the cycle, the intergenerational cycle of addiction, if we get people into treatment and we'll disrupt and prevent the intergenerational perpetuation of addiction going forward.

Q. And can you explain what you mean by the intergenerational transmission of addiction?

A. Yes. And I recognize that that is a bit of a mouthful. And what I mean is that people that -- families that have addiction -- often, addiction is not just in one generation of the family. Parents may have addiction. There are many, many settings and cases and abundant evidence that having a parent, a household member with Substance Use Disorder, is a significant risk factor for a child to develop Substance Use Disorder.

So, that's -- when I say intergenerational perpetuation

of addiction, what I mean is that this gets passed down not invariably, but not uncommonly from grandparent to parent to child and so on.

Q. Now, I think you talked about the efficacy of addiction treatment. Do many individuals in treatment relapse or drop out?

A. Well, there is relapse from treatment, but there's relapse among individuals with major depression. People with cancer relapse. People with diabetes may be well controlled at one point and their condition may be less well controlled at another. So, relapse is an important feature of Opioid Use Disorder and it's why I suggest the programs that I do, so that we can help to minimize relapse. But relapse isn't a unique feature of this disease alone.

Q. Now, did you prepare a slide to summarize the evidence regarding the efficacy of treatment for Opioid Use Disorder?

A. Yes, I did.

Q. And would that slide help you in testifying today?

A. Yes, it would.

MR. SINGER: Your Honor, may we publish?

BY MS. SINGER:

Q. And, Dr. Alexander, this slide, Treatment Saves Lives, is that the slide you prepared to summarize the evidence regarding the efficacy of Opioid Use Disorder treatment?

A. Yes. It contains what I think is a pivotal and

well-done study that summarizes information from many, many other sources.

Q. And what does that study convey?

A. Well, I think the graph on the right in the slide says it all. It conveys that the likelihood of death among individuals with opioid addiction is significantly, many fold higher, if you're not in treatment than if you are in treatment. And the risk is somewhere in the middle among individuals who have discontinued treatment. So, I think that it shows the significant benefit of treatment in reducing the likelihood of people dying.

Q. And what is the difference in the death rate for people in treatment versus those who aren't in treatment or never receive treatment?

A. So, while in treatment, the death rate in this study was less than one in a hundred person-years. And among those who had never received treatment, the death rate was about five in a hundred person-years. Whereas, among those who had received treatment, the death rate fewer than two per 100 person-years.

Q. And from a public health perspective, is that a meaningful difference?

A. Massive. Massive. I mean, this -- this type of effect, if only we had this type of effect in looking at many other medicines that are approved by the US FDA that

may well deserve to be on the market, but that don't have nearly this -- this effect on mortality.

Q. Now, are there strategies to decrease relapse and increase retention in treatment for Opioid Use Disorder?

A. Yes, there are.

Q. And what are those strategies?

A. Well, it's important to meet people where they're at and to support them in treatment. You know, one treatment is -- often, for many individuals, there's not a one-size-fits-all approach to treatment, but for many individuals, the combination of pharmacologic treatment with FDA approved medications in combination with other supportive and wrap-around services, things like peer recovery coaches; for some people, 12-step programs as an adjunct to pharmacologic treatment. Social and psychosocial services. Supports to help people maintain stable housing. Supports to help people get vocational training so that they can have meaningful employment that adds meaning to their lives and stability and helps them to have an income and put food on the table. I discuss all of these in my plan and I think that they're all important in reducing rates of relapse.

Q. And just to single out one, Dr. Alexander, I think you mentioned pharmacological interventions. Can you describe what those are and what impact they have?

A. Sure. Well, when I say pharmacologic interventions, I'm referring to FDA approved treatments for opioid addiction of which there are three, Buprenorphine, Methadone, and Naltrexone, and these are -- these are important, as I said, because we have an enormous amount of evidence regarding their safety and effectiveness.

Q. And what is the evidence regarding their effectiveness?

A. Well, we know that they can decrease risks of mortality by as much as 50 percent in some studies and that they are well tolerated. So, it's not just a function of their potential effectiveness, but also, their safety and the degree to which patients perceive that they help them with things like opioid craving.

Q. And is there a consensus around the use of medication assisted treatment for the treatment of Opioid Use Disorder?

A. Yes, there is.

Q. And where is that or how is that consensus expressed?

A. Well, I think historically for many different reasons many individuals have not had access to medication assisted treatment and historically there's been some perception that being on medication assisted treatment is simply substituting one addiction for another, but nothing could be further from the truth.

Individuals that are stably maintained on medication assisted treatment do not have active addiction. They're

not developing addiction to a medicine like Buprenorphine that's preventing them from having the cravings that they would otherwise experience.

Q. And so, what does medication assisted treatment do in helping treatment be effective and stable?

A. Well, it helps individuals. It helps to address the craving that otherwise -- that is physiologic, that is driven by changes in brain chemistry, and that otherwise is almost overpowering and that contributes to many individuals maintaining continuing use of opioids and feeding their active addiction.

Q. Now, is treatment, including medication assisted treatment, sufficiently available in Cabell County and the City of Huntington?

A. No, it is not.

Q. And are there barriers to accessing that treatment?

A. Yes, there are.

Q. What are those barriers?

A. Well, we've already -- I've already discussed historically wait lists where treatment programs that are at or near capacity, but there are also barriers because individuals that are struggling to maintain treatment also have other factors that contribute to or make it more difficult for them to participate in treatment.

So, I've discussed things like housing, economic

security, the costs of treatment, stigma that is pervasive throughout many communities.

MR. HESTER: Your Honor, may I object? Dr. Alexander's report does not refer to this point about waiting lists or treatment capacity in local community. There's no reference in his report to these subjects. He did not discuss the capacity for treatment in the local community. So, we believe this goes beyond the scope of what was disclosed in his expert report. We were not given an opportunity to take his deposition on these subjects. And so, we object to it.

THE COURT: Ms. Singer?

MS. SINGER: Your Honor, I disagree. Dr. Alexander talks about all of the programs that exist in this community. He talks about the nature of services, the demand for services, and was questioned extensively in two depositions in this case regarding what services are needed and how they match with resources.

MR. HESTER: My point is different, Your Honor, and narrower. My point is Dr. Alexander did not offer any opinion on the level of capacity or level of waiting lists, et cetera, in the community. He certainly did refer in general terms to the existence of treatment programs in the community, but on this particular point about the available capacity or whether there were waiting lists for services in

the community, it was not discussed.

And, indeed, in his deposition he was asked the question whether he had looked at the current levels of capacity in the community and he said I was not asked to qualitatively net out the current service provision within the City of Huntington and Cabell County.

He disclaimed providing an opinion on the current level of capacity. He did not disclose any facts relating to waiting lists or whether the current level of capacity was sufficient. He specifically said he wasn't addressing that. And he -- and he disclosed that in his deposition.

So, we believe this is going beyond the scope of his expert opinion and beyond what was disclosed to us. We were not given a chance to examine him on this point.

MR. SINGER: So, Your Honor, if I may respectfully, Paragraph 96 of Mr. -- of Dr. Alexander's report he writes adequate expansions in infrastructure are needed to increase treatment capacity to meet current demand, as well as to accommodate individuals who will be connected to care through an increasing number of initiatives.

He goes on to describe Project Engage. He talks about emergency department. Cabell County hospitals. He lists in his reliance materials and was specifically asked during his deposition about interviews he conducted with stakeholders.

He was shown a copy of those interviews.

THE COURT: Well, the point is, if I understand it, is whether -- is that the issue is the level of capacity; is that right?

MR. HESTER: Yes, Your Honor. That's the point.

THE COURT: And that wasn't included in his report?

MR. HESTER: It was not included in his report.

THE COURT: I'm going to sustain the objection, Ms. Singer. You can move on to your next point.

BY MS. SINGER:

Q. Dr. Alexander, what happens if the treatment someone needs for Opioid Use Disorder is not about -- available when that individual seeks help?

A. Well, they -- they will continue using. They will continue using opioids or any -- any way -- any way they can.

Q. And does that have an impact in terms of mortality, morbidity, and other harms that you describe in your report?

A. Yes. It has an enormous impact. I mean, I think this slide demonstrates the difference in the likelihood of death among individuals in treatment versus out of treatment. So, the risks of individuals that are not able to access treatment is enormous.

Q. Now, Dr. Alexander, did you prepare a slide that -- a

further slide that talks about the evidence for other aspects of your treatment plan?

A. Yes, I did.

Q. And would that slide assist your testimony?

A. Yes, it would.

MS. SINGER: Your Honor, may we publish?

BY MS. SINGER:

Q. Dr. Alexander, is this the slide you prepared laying out some of the evidence for other aspects of the treatment program?

A. Yes, it is.

Q. And can you describe what that evidence consists of?

A. Well, these are just, again, illustrative examples, but emergency department, bridge programs that I referred to that transition people from emergency department straight into treatment can double the chance that an individual with Opioid Use Disorder will receive treatment. Quick Response Teams, which I've noted previously. One in three individuals contacted by Cabell's Quick Response Team after an overdose began treatment. And naloxone, as well. A systemic review of naloxone take-home programs showed it was successful in reversing overdose in 96 percent of cases.

Q. Now, in terms of naloxone, can you describe what is needed in terms of making naloxone more available in Cabell and Huntington?

A. Well, I suggest a number of different means to better distribute naloxone within the community ranging from ensuring that first responders continue to have it and that it's well stocked in emergency departments to providing it to family and loved ones of individuals that are at high risk of overdose, to using public lock boxes similar to defibrillators.

You know, if someone has a heart attack in a mall, or an airport, a movie theater, there is a defibrillator there and it should be no different in a community that's been as devastated and where overdose is as common as Cabell County. It should be no different with respect to the public availability of naloxone.

Q. All right. Dr. Alexander, let's move from here to the third category of interventions in your abatement plan, recovery. What's included generally within the recovery area of your plan?

A. Well, recovery includes a whole host of programs and services that aren't focused on -- directly on treating individuals with active addiction, but nevertheless will allow for those individuals to flourish and for the community as a whole to regain its former livelihood and standing that Cabell County and the City of Huntington historically have had.

Q. And did you prepare a slide that summarized some of the

specific interventions that are included in the abatement plan?

A. Yes, I did.

Q. And would that slide assist your testimony?

A. Yes, it would.

MS. SINGER: Your Honor, may we publish?

BY MS. SINGER:

Q. And, Dr. Alexander, can you describe the subcategories of intervention that make up the recovery plan?

A. Public safety includes a number of different programs and services for law enforcement, such as the development of an overdose response -- I'm sorry. Such as the development of an overdose team or squad which would be able to investigate overdoses and track down the originating sources, for example, of opioids in the community.

Criminal justice system includes ensuring that individuals within the penal system have access to treatment and, as well, supporting programs, for example, to divert individuals from the criminal justice system into the treatment system.

Vocational training and job placement is very important in a place like Huntington and Cabell County because of the degree to which the economy has been decimated and the degree to which individuals with opioid addiction who are in treatment and in recovery are a great source of workforce

that can help the economy to recover.

Reengineering the workplace is important because this is not only valuable to help make the workplace more accommodating with individuals with addiction, but also, to help employers to better manage the workplace and to help local businesses to thrive.

And mental health counseling and grief support, unfortunately, is needed because of the ways -- the mental health impacts of the epidemic. If you consider, you know, children that have been orphaned or simply living with somebody with Substance Use Disorder, or adults that have lost loved ones, there is a lot of -- there is a lot of impact from the epidemic that requires mental health counseling and, in some cases, grief support.

Q. Now, to provide just one example, Dr. Alexander, of the programs that you lay out, can you walk us through what drug court in Cabell County does and why you include it?

A. Well, historically, many individuals that are non-violent; in some cases, first time offenders, non-felonies, with addiction have ended up in the criminal justice system.

Addiction treatment for these individuals offers them an opportunity to get back on their feet and to re-enter the workforce and to have meaningful jobs and return to their families and the like.

So, law enforcement assisted diversion -- I'm sorry. So, drug courts are a separate track within the criminal justice system that allows for individuals that may be non-violent, may be first time offenders, to get treatment instead of ending up incarcerated.

And there are terms and provisions to the participation and such and, I believe in Cabell County and the City of Huntington, there's also been a separate track, the WEAR program for women who are commercial sex workers, many have a history of trauma, violence. And here, too, this is a separate track within the drug court system that allows for them to get treatment for their underlying disease.

Q. And, Dr. Alexander, is there a need, based on your research, and analysis, and report, to expand the services that drug court is able to offer?

A. I believe that there is.

Q. Now, can you explain, and you've touched on this briefly, why job training is part of the abatement plan?

A. It's part of the plan in this community because this community, the local economy has been hurt, was challenged before the epidemic, and the epidemic has taken an additional toll.

Many individuals with opioid addiction, when they enter treatment want and are looking for gainful employment, and job vocational training and job placement allows for them to

get back on their feet. It allows for them to start drawing an income to put food on the table, to help support a family, and it is an important component of successful recovery.

Q. Now, is there evidence to support the efficacy of the recovery programs that you've described and lay out in your report and model?

A. Yes, there's extensive evidence.

Q. And did you prepare a slide that summarizes some of that evidence?

A. Yes, I did.

MS. SINGER: And, Your Honor, may we publish that slide?

THE COURT: Yes, you may.

BY MS. SINGER:

Q. Dr. Alexander, is this slide, Evidence For Recovery Programs, a slide that pulls out some of the evidence supporting the recovery programs you lay out?

A. Yes, it is.

Q. And can you describe what that evidence is?

A. Well, these are illustrative examples, but the slide depicts that 82 percent of Cabell County drug court graduates did not re-offend within 12 months. And also, that in Huntington, LEAD programs, or law enforcement assisted diversion successfully transitioned more than half

of individuals to treatment.

Q. And are those good outcomes from a public health perspective?

A. I think they're very positive.

Q. All right. Let's turn then, Dr. Alexander, to the fourth category of interventions in the abatement plan, special populations. Can you describe, again, at a high level what types of programs or services are included within the special population category?

A. Well, this includes programs and services whether direct treatment -- whether the direct provision of treatment or what are sometimes called wrap-around services, things such as vocational training, or psychological counseling, or the like for special populations, pregnant women, women that have newborns, individuals who, upon re-entry after a period of incarceration, children and families that have been hurt by the epidemic.

Q. Now, and did you prepare a slide, as with the other categories of the plan, that summarize the specific subcategories of programs within that plan?

A. Yes, I did.

Q. And would that assist your testimony?

A. Yes, it would.

MS. SINGER: Your Honor, thank you.

BY MS. SINGER:

Q. And, Dr. Alexander, can you describe the abatement plan addressing special populations?

A. Yes. Well, I've mentioned pregnant women, and new mothers, and infants already.

And, Your Honor, I was also able in my brief break to check and I believe that the 17-plus-or-minus percent of cord blood samples does represent of all women coming in for birth. I believe that all women are treated -- all women are screened for Substance Use Disorder and, if they test positive, then the cords, the umbilical cords, are in turn tested.

And so --

MR. HESTER: Your Honor, may we object? I mean, the witness is doing research during -- during a break and reporting back to the Court on a question. We don't think that's appropriate.

MR. NICHOLAS: I agree.

THE COURT: Sustain the objection, Ms. Singer.

MS. SINGER: I think Dr. Alexander was trying to be helpful to the Court, Your Honor.

THE COURT: I think he was, too, and it's my job to apply the rules even when it means not being real nice, so --

MS. SINGER: Understood.

BY MS. SINGER:

Q. All right. Dr. Alexander, why don't you continue down. I think you were at the first bullet, pregnant women, new mothers, and infants?

A. Of course. So, these programs and services include screening women and ensuring that pregnant women have access to treatment after birth, supporting both the mother and infant, ensuring that infants with Neonatal Abstinence Syndrome have access to the specialized services that they need to have the best shot possible.

There are many adolescents and young adults, far too many, that show up in emergency departments that are not in school when they should be, and so on. And so, my abatement plan includes many specialized programs to address the needs of adolescents and young adults that may have non-medical opioid use or may simply be living in a household that's been impacted by the epidemic.

Families and children, as well, vitally important that the abatement plan addresses. The child welfare system has been heavily taxed because of the toll that the epidemic has played in Cabell County and the City of Huntington.

And so, this includes services both to support children that may be living in households where there's a lot of chaos because of the ongoing addiction, as well as children, for example, that may have a history of Neonatal Abstinence Syndrome in the past and their families.

I've mentioned housing and housing insecurity, as well, and this is also vitally important. It's very hard for someone with addiction to get up on their feet if they -- if they are homeless, if they don't have a secure place to live, if they don't have a roof over their head, and I think that sometimes this can be taken for granted.

And, lastly, opioid misuse. There are many, many individuals that may not have formal addiction that are using these products non-medically. They're at elevated risk of addiction and elevated risk of overdose. And so, this is another special population of interest.

Q. Now, Dr. Alexander, did you prepare a slide that speaks specifically to the impact of the opioid epidemic on children in West Virginia?

A. Yes, I did.

Q. And would that slide assist you in testifying today?

A. Yes, it would.

MS. SINGER: Thank you, Your Honor.

BY MS. SINGER:

Q. And, Dr. Alexander, this slide, Impact on Children in West Virginia, does this summarize some of the facts that you relied upon in reaching your opinion on the interventions for special populations?

A. Yes, it does, and I think the statistics are staggering. You know, 2017, 54 of every one thousand

children in West Virginia were affected by the opioid epidemic. I mean, look at that compared with nationally, 28 out of a thousand children.

In West Virginia, over half of these children are residing in a household without a parent. I'm sorry. In West Virginia, over half of these children resided in a household with a parent that had opioid addiction.

Nearly one in five lost a parent due to death or incarceration. One in five were removed from their home for foster or kinship care.

Of the 22,000 total children affected, it's estimated that 1,500 either developed opioid addiction as an adolescent or accidentally ingested opioids as a child.

And this last statistic is one that's based on my discussion with local experts. Up to half of children in Cabell public schools are being raised by someone other than a parent. I think that these statistics suggest the gravity of the epidemic on children.

Q. And, Dr. Alexander, are these kinds of statistics different than what you have observed nationally or in other jurisdictions?

A. They're strikingly different. Again, in just about every metric it's hard to find a place in the United States that's been impacted as heavily as Cabell County and the City of Huntington.

Q. All right. So, in terms of programs for children, Dr. Alexander, can you speak in greater detail about the kinds of interventions that are needed for teens and adolescents, to just pull out one example?

A. Sure. Well, my discussion with experts from the local school system underscored just how challenged the school system is in managing individuals, adolescents and teens, that may be living in households. They may not be living with their parents. They may be living in households that are -- have a high degree of dysfunction and where there's active addiction.

So, the sorts of programs and services include increasing the volume of social workers and other specialized experts within the school system so that there's a stable and consistent workforce that's able to intervene with these children to advocate on their behalf and, as well, to screen them for their own risk of opioid non-medical use or addiction. And then, to help ensure that they have access to the same high quality treatment that everybody should have access to in the community.

Q. Now, Dr. Alexander, as with the other programs that you lay out, is there evidence that this -- these interventions for women, newborns, teens, adolescents, having secured all of the other categories, are effective?

A. Yes. Again, I suppose you might call it one of the

silver linings of the epidemic, but -- a bit large nationally -- but there has been an immense body of evidence developed evaluating different abatement remedies and there's not exactly the same amount of evidence for one remedy versus another, but the interventions that I propose in my abatement plan are well supported by the scientific and public health evidence.

Q. And specifically, with respect to special populations, did you prepare a slide that laid out or summarized the efficacy of those interventions?

A. Yes, I did.

Q. And would that slide assist you?

A. Yes, it would.

MS. SINGER: Your Honor, may we publish?

BY MS. SINGER:

Q. And, Dr. Alexander, does this slide pull out a couple of examples of the evidence that these kinds of interventions work?

A. Yes. This slide just depicts or, you know, provides illustrative examples again, but one focused on maintaining family relationships and the importance of that and improving the health and socio emotional outcomes for women and children.

And the second from the West Virginia Perinatal Partnership is focused on early -- on pregnant women or

newborns and their mothers, the Drug Free Moms and Babies Project, which is an effective universal screening program which has reduced drug use among at risk and medically underserved women.

Q. Now, is it -- and we can put this slide away. Is it your professional opinion that the program, that each of the programs that you described, will reduce the harms from the opioid epidemic in Cabell County and the City of Huntington?

A. Yes, it is.

Q. And I think you've alluded to this earlier, but have the programs you describe and lay out in your plan been proven to be effective in other jurisdictions?

A. Yes, they have.

Q. All right. Let's move on from the elements of the plan, Dr. Alexander, to the costs. Did you prepare calculations that reflect the population and needs to be served by the various programs included in the abatement plan for Cabell County and the City of Huntington?

A. Yes, I did.

Q. And did you derive cost estimates for the units of those programs and population?

A. Yes, I did.

Q. Now, do you -- do you total those cost numbers yourself?

A. No, I do not.

Q. And do you know who did?

A. I believe that was performed by George Barrett.

Q. Now, how did you arrive at the cost numbers that are associated with the abatement plan?

A. I used a process similar to the process that I use in looking at epidemiologic estimates; that is, I carefully examined the both peer-reviewed and non-peer-reviewed reports. I spoke with local experts. I reviewed documents that may have been produced by defendants or plaintiffs.

And I spoke with local experts, colleagues of mine. In addition to local experts, I spoke with colleagues of mine, professional colleagues, and used an iterative approach. So, it's really the same approach as I use in all of the work that I do.

Q. And did you also rely, in addition to review of the literature and the conversations you've described, did you rely on any data sources?

A. Yes, I did.

Q. And were those data sources national, state or local?

A. Well, I -- I mean, when I approach these sorts of scientific questions, I have an open mind about which data sources may be best. And I may have reviewed national, state and local data but, in general, holding all else constant, I try to use local sources because those best reflect the situation on the ground and they're most --

they're most germane to the matter at hand.

Q. And did you sometimes turn to national or state sources of data, as well?

A. I did. You know, unfortunately, all else is not always equal. In other words, there are times where national or state sources, I felt, were preferable sources to use.

Q. Now, I would like to show you what has been marked as P-41907.

MS. SINGER: Your Honor, may I approach the witness?

BY MS. SINGER:

Q. Dr. Alexander, while we're distributing these, why don't you take a look and see if you can identify the binder of documents we've put in front of you?

A. Yes, I can.

Q. And what is that set of documents?

A. It represents the populations that I estimated were in need of given services, as well as, in some instances, the unit costs of those services.

Q. And is that sometimes described in your report as the redress model?

A. Yes, it is.

Q. And does this set of documents represent your analysis of the elements and costs of the abatement plan for Cabell County and the City of Huntington?

A. Yes, it does.
Q. Does it cover every program within the abatement plan?
A. I -- yes, I believe that it does. I mean, there are not necessarily population estimates for every -- for every remedy, but it does cover the universe of programs that I -- that I suggest.
Q. And where there aren't population estimates provided, why is that?
A. Because they were -- in some cases the need for those services is subsumed in other categories.
Q. And, Dr. Alexander, does the worksheet itself also lay out the specific data sources you relied on for your -- your figures?
A. Yes. I've attempted to provide detailed documentation regarding the sources of information that I relied upon.
Q. And if you turn to the very first document, do you see a document that lays out the abatement categories?
A. Yes.
Q. And does this tab of your spreadsheet list each of the program areas for which you prepared analyses?
A. Yes.
Q. With the Court's permission, I would like to direct you to Tab 2-E. And let's use this as an example, Dr. Alexander. Can you describe what the worksheet under Tab 2-E represents?

A. Yes. The rows represent different categories of naloxone distribution. I referred to this previously and you can see, for example, first responder training and naloxone for first responders. Naloxone for emergency departments. Naloxone for high risk patients. And naloxone for public lockboxes. The columns represent the years from 2021 through 2035.

Within the cells, what I've done is I've populated specific populations that I estimate require each -- you know, specific populations relevant to each category.

So, for example, just taking the first top left cell, the number 643, that represents my estimate of the number of first responders in Cabell County that should receive naloxone training.

The final two comments I'll make about this document, lower in the document under the notes section, I provide a detailed explanation of the source of information that I used for any given row.

So for example, the number that we saw, 643, represents what I call Row 1 in brackets and I provide a source for which I derived that information. In this instance, it was derived from a different tab which focused on estimating the workforce.

The last thing to emphasize is I'd like to be able to identify the Excel row. If you scroll up slightly, please,

it's Excel Row 29, the Intervention Population Trend Ratio. So, this is important. And this represents a scaling down of this service over 15 years because of what I believe can be achieved in abating the opioid epidemic over 15 years.

And so, essentially, this -- this applies a trend down to 0.5 in the final year. And the way to interpret that is by that 2035, I estimate that we can reduce overdoses in the community and the need for naloxone by 50 percent. And so, essentially, this is a program that is scaled down over the course of 15 years and that trend ratio represents that scaling.

Q. Now, Dr. Alexander, did you prepare a similar analysis, as you're previously qualified it, for the various interventions that are included in your abatement plan?

A. Yes, I did.

Q. And in preparing this analysis, did you rely on data that is typical of the types of data relied on by epidemiologists and experts in opioid abatement?

A. Yes, I did.

Q. And does your analysis in this set of worksheets reflect, to a reasonable professional certainty, the needs and unit costs for services in the abatement plan?

A. Yes, it does.

MS. SINGER: Your Honor, I would move to admit P-41907.

THE COURT: Any objection?

MR. NICHOLAS: Yes, Your Honor.

THE COURT: Start with you, Mr. Nicholas.

MR. NICHOLAS: Thank you. I would object to this document. This document -- these are work papers that were attached to or that were a part of Dr. Alexander's expert report. I believe what's being offered into evidence here is a portion of his report. That's hearsay. It contains hearsay because it -- you know, it has sourcing that Dr. Alexander himself referred to.

So, I think this is an attempt to basically put in, you know, a large portion of Dr. Alexander's expert report. We -- I didn't object to his talking about -- about it and he can reference it and even put -- you know, put it up for demonstrative purposes, but I think this is hearsay, so I don't think it should come in.

MR. HESTER: We would join in that, Your Honor. It is a part of his expert report and it should not be admitted as evidence.

THE COURT: Ms. Hardin?

MS. HARDIN: Same, Your Honor.

MS. SINGER: So, Your Honor, respectfully again, the fact that this is an appendix to Dr. Alexander's expert report is not dispositive as to whether it's hearsay.

Dr. Alexander, as you know, is qualified as an expert.

This chart contains not only his work product, but his analysis and represents actually his opinions as he described at the outset of his testimony.

He has personal knowledge of these charts and he's testified to how he prepared them and the reliability of the underlying data. Thus, he's laid the groundwork both for the authenticity and the foundation of the document.

He could testify to each cell in the chart. I think we'd have a very long day ahead of us. And under both FRE 703 and Rule 611(a)(2), which authorizes the Court to receive this document into evidence to avoid wasting time, I would submit that it is admissible.

THE COURT: Ms. Hardin?

MS. HARDIN: What Ms. Singer has just described is every expert report. That's what an expert report contains, is opinions, analysis and the sources that they rely on. There is nothing different about this than any other expert report and it's very clear that expert reports are not competent evidence and should not come in.

And I don't think 611 -- I mean, this is their abatement plan and they want an enormous amount of money based on what's written here. So, they've got to do more than introduce an expert report. So, nothing Ms. Singer has said takes this out of the realm of any other expert report and hearsay and it's inadmissible and shouldn't come in.

MR. NICHOLAS: I mean, the witness described this document in part as his work papers. He was questioned about these as the working papers that were used to prepare his report.

If I remember correctly, one of the documents we -- one of the visuals that we saw here showed that it was work that was done by the witness's separately owned data company that -- whatever it is, the data analysis company called Monument.

And so, this is all simply -- number one, it's the work that was done in support of the report. And, number two, it's a portion of the report itself.

MS. SINGER: Your Honor, these are Dr. Alexander's opinions for which he has laid the foundation that lays out the elements and associated costs and, therefore, again, you know, as with other types of evidence that you have received.

MR. NICHOLAS: Well, if I may, this -- this document is an example of something that looks nothing like opinions. This looks like data.

And he can testify about opinions, he can, and that's what -- you know, that's fine, but this documentation, this extensive documentation, is not that.

THE COURT: What about the argument Ms. Singer made, if I understood correctly, that this will assist the

Court by saving a huge amount of time, it seems to me, if he has to go through all of these things in the report and explain them if the report doesn't come in? Couldn't I admit it just as a matter of efficiency to shortcut this?

MR. NICHOLAS: That's such a hard question to answer because -- because that is the most persuasive thing that Ms. Singer said, I agree. I just don't think it's -- you know, it's a workaround. It's a -- it's -- it goes beyond sort of a shortcut. It's too big of a deal. I mean, there's a tremendous amount of information in here, data, you know, work that's -- work that's been done.

I mean, this is all the -- this is all -- what the witness is saying is support -- is his work product. So, I admit that that was the most appealing thing that Ms. Singer said.

THE COURT: Certainly appealing to me, Mr. Nicholas.

MR. NICHOLAS: And it is or isn't? It is or is not?

THE COURT: I'm sorry.

MS. HARDIN: Well, I was going to say, it is a shortcut, Your Honor. I mean, we could say that about lots of -- lots of pieces of documentation, that it might shortcut things, that it might be easier. That doesn't make it proper.

And what I keep hearing being said is that these are Dr. Alexander's opinions. And that's what every expert report contains and the expert reports are not admissible.

MS. SINGER: So, Your Honor, again, to be clear, we are not seeking to enter into evidence Dr. Alexander's entire expert report and there's precedent for this. I would direct the Court to *State Office Systems, Inc. v. Olivetti Corporation of America,* a Tenth Circuit opinion, which found that interpretations of data and projections are admissible as opinion testimony, I think, for just the reasons that have been laid out to Your Honor.

THE COURT: Yes, ma'am, please?

MS. HARDIN: Again, if he would like to offer some opinion testimony from the stand, we don't object to that, but the wholesale introduction of this document is improper. And I think the Fourth Circuit has said that Rule 611 demonstratives cannot be submitted as evidence, which I think outweighs whatever the Tenth Circuit has had to say about this.

THE COURT: Mr. Hester?

MR. HESTER: Your Honor, just one further thought. Insofar as the point is being made that it would save time for the Court, we submit that the proper approach would be for the witness to provide some sort of a summary of his analysis, not to put in his opinions wholesale.

I mean, this is a critical element of his expert report. If he was -- if he wants to provide the Court with a summary there are certainly ways to do that under the Rules of Evidence, but we don't think the approach is dump in the whole report into evidence. That doesn't seem appropriate to us.

MS. SINGER: So, Your --

THE COURT: Well -- I'm sorry. Go ahead.

MS. SINGER: I'm sorry, Your Honor. I certainly don't mean to interrupt you.

These are not 1006s. It is not a summary of voluminous data. It is actually the analysis that was conducted by Dr. Alexander. And, again, I think the precedent on this indicates that it is admissible on that basis.

I would also note -- excuse me -- that these documents were provided to defendants with all of the detail that Dr. Alexander has described, the notes, the cells, the formulas, the sources, all of those things, and they have had full opportunity to examine it and will no doubt have full time to cross examine him.

THE COURT: Well, let's take a short break. Somewhere in this mass of paper is my book containing the Rules of Evidence and I want to look at that.

So, let's be in -- take a very short recess.

MS. SINGER: Your Honor, I fear for looking at all

of those papers, it may be more than a short break.

(Recess taken)

THE COURT: I'm going to provisionally admit Exhibit 41907 on the theory that it's helpful to the Court and it's within the Court's discretion to direct the order of evidence and with considerations of simplifying things and saving time. This will help me to understand the evidence. We don't have to worry about confusing a jury.

I read your Tenth Circuit case, Ms. Singer, and I'm not sure it exactly gets you there, but if you want to rely on that and go forward on this basis, we'll do it, and if I ultimately decide that I can't let it in, then you're taking a chance here and -- but so am I -- and I think the witness's testimony would be extremely difficult for me to follow and understand without the helpfulness of this exhibit.

MR. HESTER: Your Honor --

THE COURT: So, Mr. Hester, do you -- go ahead, sir.

MR. HESTER: Could we have an opportunity to brief this point? It's an important point to us.

THE COURT: Well, can we -- can we go ahead provisionally?

MR. HESTER: Yes. Yes.

THE COURT: And I would be -- I'd be delighted

with some help in the form of a brief.

MR. HESTER: But we understand the Court's point that let's -- we can go ahead provisionally, but we would like an opportunity to brief this point.

THE COURT: All right. That would be helpful to me and let's -- let's have the witness return to the stand.

MS. SINGER: Yes, Your Honor.

THE COURT: Dr. Alexander.

MS. SINGER: Bear with me one moment, Your Honor.

(Pause)

THE COURT: If this were a jury trial, there would be a lot greater danger in going forward the way we are now, but I don't see the -- I think a possibility of unfair prejudice is minimized, but I'll conditionally admit it and then consider what you want to submit. And I'll let you go ahead.

MS. SINGER: Your Honor, just one further note on this, and I don't want to belabor the point, particularly since we've landed in a good place for purposes of this testimony, but Mr. Barrett will be testifying relying on these calculations and data. And so, I actually think, in these circumstances, this provides defendants with an opportunity to fully cross examine the witness who prepared these calculations and I think that only enhances the fairness of the process, but I recognize that the issue will

be briefed to the Court.

MR. HESTER: Well, Your Honor, we're actually placed in a quandary in the other direction by this because, in our view, this is not evidence. This is a part -- a fundamental part of his expert report that's being put in provisionally this way.

Mr. Barrett is coming tomorrow and we're in a posture of needing to know whether or not Mr. Barrett can properly rely on this as evidence, whether materials not presented to the Court during Dr. Alexander's testimony can be relied on by Dr. Barrett for his calculations, and it puts us in a very difficult spot.

THE COURT: Well, I think that's a chance you're taking, Ms. Singer.

MR. ACKERMAN: If I may, Your Honor, just to address that point, Rule 703 does not require that an expert rely on materials that are actually in evidence. Experts can rely on inadmissible materials, as well. So, I don't necessarily think it's as much of a quandary as Mr. Hester states.

THE COURT: Well, that coincides with the principle we all acknowledge that an expert's report contains hearsay and the report itself can't come in, does it not?

MS. SINGER: So, again, Your Honor, we've heard

the ruling and I don't want to belabor the point with the witness and time ticking. I understand that the Court will take briefing on this issue. I think Dr. Alexander's testimony establishes that the calculations themselves are reliable and, therefore, would satisfy Rule 703 for another expert's reliance, but we do understand the issue that the Court has framed for us.

MR. HESTER: Your Honor, if we could, given the importance to Mr. Barrett's testimony tomorrow, could we suggest simultaneous briefing by end of the day today?

MR. ACKERMAN: Your Honor, we are preparing witnesses. We've got one witness on the stand. We cannot agree to simultaneous briefing by the end of the day today. That's --

There are a number of documents in this case that the Court has conditionally admitted or taken under consideration. We understand that. But in terms of timing, I cannot commit some of my colleagues who are not in court right now to abandon what they're doing in terms of preparing another witness in order to brief an issue like this on this type of short notice.

MR. HESTER: I think we all have pretty large teams here, Your Honor. I think this is a pretty straightforward evidentiary point that could be reached by the end of the day.

THE COURT: Surely you've got somebody that can work on this and do it.

MR. ACKERMAN: I --

MS. KEARSE: I'll get right to it, Your Honor.

MR. FARRELL: Judge, on behalf of Cabell County, trying not to triple team the Court, we don't see this as any different than what we did earlier in the trial where we took the data from Dr. McCann and had Mr. Rafalski rely on the data. So, this is a -- a foundational issue upon which we're building a case.

So, the question becomes if these data points need to be read into the record line by line by line by line, row by row by row for data points for Mr. Barrett to testify about, I don't think that's envisioned by the rules.

The rules require us to establish a foundation for the trier of fact to believe whether or not these numbers are reliable, evidence based, and trustworthy. You then put weight on whether or not that these numbers can be relied upon.

Tomorrow, Mr. Barrett will do likewise. He will take that underlying proposition and place an economic value on it. This is not a house of cards where you pull one card and the entire thing falls down.

We've spent most of the morning laying the foundation. If the defendants do not want this in the record then,

respectfully, I see it the other way. I see it in terms of if they don't want it in the record, then Mr. Barrett is allowed to rely upon it under Rule 703 and the defendants then lose the opportunity on appeal to challenge the underlying evidentiary value to it. So, this is a catch-22 for the defendants, not the plaintiffs, Your Honor.

MR. HESTER: My question was only a narrow one, Your Honor, whether we can have simultaneous briefing by the end of the day.

THE COURT: Mr. Farrell, can your side do a brief for me on this issue by the end of the day?

MR. FARRELL: Of course, Your Honor.

THE COURT: All right. I'm going to order simultaneous -- I hate to do this to lawyers because I know you're under all this pressure and everything, but -- and I had it done to me when I was practicing and it was awful.

MR. ACKERMAN: One quick question, Your Honor. When does the day end in the Court's mind?

MR. HESTER: Could we say 6:00, Your Honor?

THE COURT: Yes, 6:00 p.m.

MR. ACKERMAN: Okay.

THE COURT: Submit by 6:00 p.m. whatever you can and it doesn't have to be a -- your normal excellent workmanship. I just want the cases, and the principles, and your interpretation of them.

And we'll go forward on the basis of that resolution, Ms. Singer, and I think the ice is pretty thin here, but let's go.

MR. FARRELL: All right. I wish I could say it was the first time, Your Honor, but I think Dr. Alexander will help us rebuild our ice.

BY MS. SINGER:

Q. All right. Dr. Alexander, when we broke, we were talking about the calculations that underpin the redress model and you had gone through the tab relating to naloxone. So, let's turn to the tab that relates to OUD treatment. I believe that's 2-B, Shakespearianly.

Dr. Alexander, can you turn to 2-B? Does this represent your calculations and analysis with respect to the provision of addiction treatment services?

A. Yes, it does.

Q. All right. I'd like to start by asking you to explain to the Court whether you provide an estimate for how many people would receive treatment in the first year of the abatement plan?

A. Yes, I do.

Q. And where is that number and what is that number?

A. Well, the number is 3,153 and that's represented in Cell D12.

Q. And how did you arrive at that number?

A. Well, first, I used an estimate of the total population in the community that's estimated to have opioid addiction. Then, I reduced that population modestly based on applying the trend ratio that I've already described previously. In this instance, that's depicted on Row 31.

And then, of individuals that I estimate have active OUD, or active addiction in the community, I estimated that 40 percent be targeted for treatment in the first year of the plan.

Q. And why did you start with a 40 percent estimate of how many people would be treated?

A. Because I think 40 percent is an achievable and meaningful number and it is supported by evidence suggesting nationally that somewhere between 20 and 30 percent of individuals are -- get some sort of treatment in a prior -- in the prior year. And it also is informed by recommendations from the World Health Organization.

Q. And does your plan include interventions that are designed to increase the takeup rate of treatment that would allow the plan to achieve the 40 percent treatment level?

A. Yes, it does.

Q. Now, will the --

THE COURT: Let me interrupt you for a minute. The way you're proceeding, it occurs to me that I could not admit this, but consider it as a demonstrative to illustrate

the testimony he's giving. Am I out in left field on that?

Ms SINGER: I don't believe you're out in left field, Your Honor, but I would -- I would be more comfortable answering this at 6:00 tonight.

THE COURT: Okay.

MR. HESTER: I mean, Your Honor, we would agree it's a demonstrative in aid of his testimony. It's just not evidence. We don't see it as evidence given that it was the critical part of his report.

THE COURT: Ms. Hardin?

MS. HARDIN: Agreed, Your Honor. So, any portions not testified about, therefore, would not be evidence and couldn't be considered by the Court.

MR. ACKERMAN: So, the issue we have, Your Honor, and this will obviously be briefed --

THE COURT: All right. Well, I will wait for the briefs, but the evidence -- certainly, his testimony is evidence, right?

MR. ACKERMAN: Yes, Your Honor, and that's the issue we have, that even under *U. S. v. Genetti*, the Court said that if the bench doesn't allow summary charts, then the government had to be afforded the opportunity to prove its case the long way.

MS. SINGER: And the long way is a binder full.

THE COURT: All right. Go ahead.

BY MS. SINGER:

Q. All right. Dr. Alexander, so I think I was just asking you whether the proportion of individuals in treatment remains constant over the term of the abatement plan?

A. No. I believe that we can ramp up treatment over the 15 years. And so, while there's a decrease over time in the total number of people with addiction because the abatement plan will reduce the total population with addiction, I suggest increasing the proportion of those people that are accessing treatment over the 15 years from 40 percent of people in Year 1 to 60 percent of people with Opioid Use Disorder in Year 15.

Q. And in your professional opinion, is that increase in the proportion of individuals in treatment reasonable and consistent with sound -- sound methodology for epidemiology?

A. Well, it's informed by my knowledge of abatement programs and the treatment infrastructure both locally in Cabell County and, as well as around the country, and I believe that, again, I believe that these sorts of treatment levels are both achievable and meaningful.

Q. Now, are all of the individuals being treated for addiction in this abatement plan laid out here receiving the same level of care, Dr. Alexander?

A. No. No. There's not a one-size-fits-all and some individuals require intensive, much more intensive care than

others. So, I suggest that individuals that -- that the treatment infrastructure be expanded to offer four levels of treatment.

Inpatient treatment for a very small population.

Residential rehab also for a small population.

Intensive outpatient treatment. So, this is four days a week, say.

And then, the vast majority of individuals would be receiving treatment in an ambulatory setting, just routine outpatient care.

Q. And did you estimate how those individuals in treatment would be -- would be distributed among those four levels of care?

A. Yes, I did. I used a national -- two national data sources to derive what I feel are reasonable estimates for distributing those individuals across different -- the four different levels of care.

Q. And is that -- is that data source and the analysis you conducted reasonable and predictive at a population level?

A. Yes, it is.

Q. Now, and is it a reasonable methodology for classifying the levels of treatment required for individuals with addiction in Cabell County and the City of Huntington?

A. Yes, it is. And, among other things, it corresponds with the American Society of Addiction Medicine levels of

care.

Q. And in what kind of setting, and I think you may have touched on this, Dr. Alexander, will most treatment be provided within the abatement plan?

A. The vast majority in -- the majority in outpatient care, and if you look at the total number of treatment days in the four levels of care, it would be the vast majority that would be provided in the lowest acuity level of care, ambulatory care.

Q. And is the lowest acuity level of care also the least expensive level of care?

A. Yes, it is.

Q. Now, on that note, did you also provide estimates of the daily costs of treatment at the four various levels of treatment?

A. Yes.

Q. And how did you calculate those daily treatment costs?

A. Well, I've discussed my general approach, I believe, twice at least, so I used the same scientific approach. In this instance, I ultimately arrived at a local estimate based on Medicaid reimbursement that allowed for me to estimate the unit costs of each level of care.

Q. And did you rely on a particular source of cost data in determining the treatment -- daily treatment costs?

A. Yes, I did.

Q. And what was that source?

A. Well, I believe it would be identified in this spreadsheet lower down. One would have to scroll down further still. And further still.

And so, this indicates, for example, Rows 59 through 62 identify the average daily costs for different types of care and I include the references here or the sources for where I derived these estimates.

For example, the average daily costs for outpatient initiated care, $63.77. And that was based on West Virginia reimbursement rates for such care.

Q. And why don't you go ahead, Dr. Alexander, if you would, and read the daily costs for outpatient care, residential care, and inpatient care.

A. Of course. So, outpatient care, $63.77.

Intensive outpatient care, $69.01.

Again, these are average daily costs.

The average daily cost for residential care, $78.15.

And the average daily cost for inpatient care, $78.95.

I would like to note that these are the estimated costs for individuals that begin in any one of these four treatment levels, but these individuals may not necessarily stay in that treatment level for the entire year. So, these costs essentially represent weighted averages of the costs of caring for the population of individuals that begin in

outpatient, intensive outpatient, residential, or inpatient care.

Q. And do those weighted averages take into account the fact that people may receive less intensive levels of care as they progress?

A. They do. They allow for -- they are based on the fact that individuals don't stay and require a single level of care throughout their treatment course.

Q. And all of this is built into the cost estimates and calculations that you prepared, correct, Dr. Alexander?

A. Well, Mr. Barrett ultimately derived the costs for the community, but I provided unit costs, such as those we've discussed.

Q. And did you also provide incidence numbers, as well, or population metrics?

A. Yes. I provided estimates of the size of populations needing different levels of care.

Q. Now, Dr. Alexander, in estimating the level of services required, did you subtract out the level of services that are currently being provided in the City of Huntington and Cabell County?

A. No, I did not.

Q. And why didn't you subtract out those who are already getting services?

A. Well, I have no idea what the future will hold. I

don't know -- you know, Lily's Place currently has 18 beds. I don't know if they'll have 36 in the future. The PROACT Treatment Program may have 700 slots now. I have no idea if their funding will be pulled and they'll have 600 or 500 beds in the future. So, I didn't try to develop an abatement plan on the margin, just what would be needed to fill out the gaps or patch up where there are current holes. What I did was develop an abatement plan that, in its totality, I was confident would be sufficient to achieve the gains that I have identified, a reduction by 50 percent in overdoses and deaths over 15 years.

Q. Now, Dr. Alexander, does your analysis of the population and cost inputs for the abatement plan include any estimate of the costs or losses incurred by Cabell County or the City of Huntington in the past?

A. No. My plan is forward looking. It's not backward looking.

Q. All right, Dr. Alexander. Let's move for now from this topic. Do you have an estimate, and you've referred to it, of the impact that implementing the abatement plan would have on the opioid epidemic in Huntington and Cabell?

A. Yes. I estimate, if this plan is implemented, the morbidity and mortality and, specifically, overdose deaths can be decreased by up to 50 percent in 15 years.

Q. And does that 50 percent reduction in overdose

mortality also include a reduction in incidence of Opioid Use Disorder?

A. It does. I mean, what we know from a lot of experiences, that the morbidity and mortality of opioids track together. So, yes, it includes similar reductions in rates of Opioid Use Disorder.

Q. And what is the basis for arriving at a 50 percent reduction in harms?

A. Well, I have experience modeling the opioid epidemic myself and I'm also familiar with many other models that have been performed. And so, it's the combination of those models, my experience speaking with individuals on the ground in the community, and all that I've learned about the community, and its grit, and resilience, and the perseverance of individuals in the community, and it's the totality of evidence that I understand through my professional job regarding the impact that these interventions can have.

Q. Now, is a 50 percent reduction in overdoses and Opioid Use Disorder a meaningful outcome for an abatement plan?

A. It is. It is. I have -- I mean, we're talking about hundreds or thousands of lives to be saved and many, many more if you think about the ripple effect and the cascading effect of this epidemic that I think other experts have testified to, to great effect. So, the 50 percent reduction

is a -- would represent an enormous change from the current state of affairs.

Q. Now, why does the abatement plan model interventions over a 15-year period?

A. Well, you can think of this sort of like scaffolding in that 15 years provides a sufficient amount of time to build up the program and ramp up interventions and services and then gradually to dismantle the scaffolding.

And once the community has sufficient momentum and resources and once the -- once the level of the epidemic has been effectively abated to a large enough degree that such additional investments need not arise from this plan specifically.

So, I think 15 years strikes a reasonable compromise. You know, a plan that's a hundred years would collapse under its own weight and a plan that's one or two years isn't -- is -- would be little different than -- than the communities', you know, current day-to-day struggles with funding and never knowing if, you know, if the grant will be renewed or if there will be resources that are urgently needed not just now, but to have the confidence that these will be sustained over time.

Q. So, essentially, Dr. Alexander, is it fair to -- well, I don't want to -- I don't want to lead you. So, is it your opinion that the intervention laid out in your plan

essentially brings the epidemic down to a manageable level?

MR. HESTER: Object as leading.

THE COURT: Sustained.

BY MS. SINGER:

Q. Dr. Alexander, with the abatement plan, do you believe that Cabell County and the City of Huntington will be able to manage the level of harms and needs in the community?

A. Well, it's my best professional judgment where I sit that with this -- these investments and these programs and services that -- that the community will be in a much better place and much better able to manage ongoing harms that would be at a much lower level than they are now.

Q. Now, is it your opinion to a reasonable degree of certainty that the plan's projections out 15 years are reliable?

A. Yes.

Q. And what do you base that opinion on?

A. Well, I've carefully reviewed -- I've carefully reviewed the populations in need, as well as the likely impact of different interventions. And so, you know, it's a little bit hard to discuss in the abstract, but for a given category, let's say we're talking about naloxone distribution, I've carefully reviewed the populations that are in need of naloxone, as well as estimated the effect of the interventions on those needs over time.

Q. Now, we spoke particularly about the projections related to naloxone and to OUD treatment, but are the interventions and unit costs of the abatement plan overall constant over the entire 15-year period of the plan?

A. They're not. And I believe that I may have prepared a slide that speaks to that, but they're not constant, and they shouldn't be constant because some -- some programs and services should be front loaded and scaled up more intensely in the short-term than the long-term.

I think an example of that are investments in expanding the drug court capacity. Some interventions such as medication assisted treatment I suggest be scaled similarly ramping up over time over the 15-year period.

Many interventions can be scaled down over time in terms of the investment that's required.

Of course, I apply this trend ratio. And so, for many of the interventions, I think that far fewer resources will be needed in Year 15 than Year 1.

And I would imagine, while I haven't reviewed the numbers carefully, that Mr. Barrett's calculations would reflect that.

Q. And, Dr. Alexander, you mentioned a slide you prepared. Would that slide be helpful in summarizing your testimony on this point?

A. Yes, it would.

MS. SINGER: Your Honor, may we publish Slide 28? Or maybe not 28. The key features.

BY MS. SINGER:

Q. Dr. Alexander, is this the slide you were referring to?

A. Yes.

Q. And can you describe what you need to communicate on the key futures of the abatement plan?

A. Well, I've mentioned that the plan is dynamic and I haven't yet discussed, but one important component of the plan is surveillance and evaluation that's ongoing. Many interventions begin with a short ramp-up period. I use the analogy of scaffolding to suggest that, in later years, there would be a reduction in service levels and in the intensity of interventions significantly, which would be commensurate with declining morbidity and mortality. And, as noted, I estimate that the number of people with Opioid Use Disorder or dying from overdoses can be cut in half.

Q. And, Dr. Alexander, you just referenced the surveillance element of the abatement plan. Why don't you take a brief moment and describe what that entails?

A. Well, this is very important. And I combine it with not only surveillance, but iterative evaluation and leadership and governance. And the bottom line is that Cabell County and the City of Huntington are fortunate to have some data points that can be used to understand how

varied interventions are performing and to refine the abatement plan over time.

So, not the plan. Let me correct myself. To refine the investment of resources. So, the plan is -- is a plan that allows for flexibility because it's unclear what's around the corner. The epidemic has continued to change and evolve over time. And so, it's important not only that there's a governance, and my -- my plan includes opportunities for governance, but also that there's ongoing surveillance.

Q. And does your -- does your anticipated -- does the surveillance element of the plan suggest a lack of confidence in the overall direction and elements of the plan, Dr. Alexander?

A. No. It's just good public health and public policy strategy. You know, you have to know where you're at if you want to know where you're going.

And so, if you take something like, you know, children, let's take non-medical opioid use among children 18 years and younger. It's vital that the school system have reliable information about how common that is so that they can make decisions about allocating budgets and investing in personnel to address that significant burden.

Q. Now, Dr. Alexander, does the abatement plan include estimates of the number of people who could be treated

annually over the 15-year plan?

A. Yes.

Q. And did you prepare a slide that describes those population numbers?

A. Yes, I did.

MS. SINGER: Your Honor, may we publish Slide 29, please?

THE COURT: Yes.

MS. SINGER: Or not 29, the next slide.

BY MS. SINGER:

Q. And, Dr. Alexander, is that the slide you prepared to describe the changing population numbers of people with OUD treated in the abatement plan?

A. Yes.

Q. And can you explain this chart to the Court, please?

A. Of course. So, on the Y axis is number of individuals. And that ranges from 0 to 9,000. And then the bars represent the total population with Opioid Use Disorder. And the gray portion of the bars represent individuals who are not in treatment. And the yellow bar, the yellow portion, represents the proportion that are in treatment.

And so, I'd like to just highlight -- and the X axis represents the years from 2021 to 2035.

So, I just would like to make two brief points. The first is that you can see that the total population with

opioid addiction is declining significantly in the community over this 15-year period.

The second is that the fraction of the bar height that's shaded yellow increases over time, representing a greater and greater proportion of people with addiction that are in treatment.

Q. And is that -- is that proportion consistent with the numbers that you described earlier?

A. Yes.

Q. Dr. Alexander, did you prepare a slide that describes the plan's relationship thematically to the current efforts in Cabell County?

A. Yes, I did.

Q. And would that slide assist your testimony?

A. Yes.

MS. SINGER: Can we turn to the next slide, please, Your Honor? Thank you.

BY MS. SINGER:

Q. Dr. Alexander, this slide, Building on Community Efforts, can you describe what you aim to convey with this information?

A. Well, one question that I think I've been posed or that may be of interest is what will the abatement plan add and this slide depicts what it will add. It will increase the breadth of services. It will expand and cover some

developed -- the development of some services that are not offered at all currently. I don't believe there's a formal academic detailing program, a specialized overdose unit, or a full family residential -- of course.

MR. HESTER: Your Honor, may I object? This again goes back to the point that Dr. Alexander's expert report did not address the current level of activity and programs in the community and did not purport to be providing some evaluation of the current level or what his redress program would add. It was rather he specifically disclaimed any evaluation of the current level of services in the community and said he was not evaluating what his programs would add. So, I believe this is beyond the scope of what was disclosed to us in his expert report. And we are put in a difficult position now because he disclaimed any such analysis in his report and in his deposition.

THE COURT: Well, he said earlier he wasn't opining on that, didn't he?

MS. SINGER: So, Your Honor, I think to accurately --

MR. NICHOLAS: I was only going to make that very point, that I think he said about five minutes ago that he was specifically not addressing this issue.

THE COURT: Well, and he said it earlier, too, I think.

MR. NICHOLAS: Yeah.

MS. SINGER: So, Your Honor, what I think we're trying to navigate here is Dr. Alexander does say in his report that he looked at existing programs on the ground. He didn't conduct an evaluation of those programs to assess their outcomes, but what he is describing here is not there are 400 beds and we need 6, or 60, or 600 more.

What he's talking about generally or categorically is the kinds of supports that are included in this abatement plan to supplement, expand, scale, all of those different words, what currently exists.

MR. HESTER: But that's exactly the point. This point about supplementation or expanding what currently exists is exactly what he said he wasn't doing.

MS. SINGER: Again, I think that is an existing bed and service level, Your Honor, not in terms of the broad themes of what the plan does, which is all this slide aims to convey.

MR. HESTER: I mean, Your Honor, my point is, we were not provided with this opinion from Dr. Alexander in his expert report. He specifically said he wasn't doing this in his deposition. And so, here we are.

THE COURT: I will sustain the objection, Ms. Singer.

MS. SINGER: All right.

THE COURT: Sustained.

MS. SINGER: Your Honor, what I might suggest, I think I only have a few questions to wrap up, but if it -- with the Court's permission, I know where we are. If I could take the lunch hour, I think I could come back and get Dr. Alexander off the stand very quickly, at least for direct.

THE COURT: That's fine. I'll hold you to it.

MS. SINGER: It's a certified promise, Your Honor.

THE COURT: We'll be in recess until 2:00.

(Recess taken)

MR. MAJESTRO: Your Honor, before we conclude Dr. Alexander's testimony, I wanted to inform the Court of a couple of things.

First of all, I'm going to be presenting Mr. Barrett, who is the next witness. The issue that Your Honor and the parties all raised this morning that's leading to the briefing that we're working on for 6:00 p.m. will also be implicated by Mr. Barrett's testimony on two levels; one, because he was relying on Dr. Alexander; and the second because he will have the -- we will have the same issue with his summaries that we would like to put into evidence instead of spending three hours reading numbers from a spreadsheet.

So, even if we finish a half an hour or 40 minutes

early today, I think from the cross examination we're probably going to finish at the end of the day and this is not going to be an issue, but I wanted to get the Court's permission that, even if we have half an hour or 40 minutes left, that it is probably more efficient for us to wait to put Mr. Barrett on pending your review of the briefs we're going to file at 6:00.

THE COURT: Okay.

MR. MAJESTRO: That's the -- and we don't think we're in a time crunch to get the final two witnesses on.

THE COURT: Okay. Well, let's see where we go and that would be fine with me, believe me.

MR. MAJESTRO: And then, the second point that -- when Ms. Singer passes Mr. Barrett today, we are -- I mean Dr. -- I'm sorry -- Dr. Alexander today, we are relying for today on your conditional admission and we'd like to reserve the right to re-call him if you reverse that tomorrow and we believe that would be appropriate because it's still our case. And so, we wanted to -- we wanted to make that clear, clear on the record. I think the defendants object to the latter argument, but I will let them speak for themselves.

MR. HESTER: Yes, Your Honor. We would object to any suggestion of re-calling Dr. Alexander. We think the Court has been clear in warning the plaintiffs that they were on -- I believe the Court used the phrase "thin ice" --

and they were proceeding at their risk, as they did previously with Dr. McCann and Mr. Rafalski. So, I think they're making a choice. We don't think they should get a do-over.

THE COURT: Well, we'll deal with it when it comes up and, if Ms. Singer is on thin ice, then the Court is probably out there with her.

MR. MAJESTRO: For what it's worth, Your Honor, I think we're on firm ground. And then, with that, Your Honor, I will asked to be excused and I'm going to go back to prepping Mr. Barrett. Thank you.

MS. SINGER: It's nice to have company, Your Honor. Thank you for that.

THE COURT: Yes.

BY MS. SINGER:

Q. Dr. Alexander, consistent with my certification to the Court this morning, I have only two or three questions for you this afternoon.

The first is, the abatement plan that you described lays out a substantial body of work. Is all of this really necessary for Cabell County and the City of Huntington?

A. Yes, it is necessary. The County and the City are fortunate to have the number of individuals and organizations that have worked so hard thus far to address the epidemic and I have spoken with many of them during the

course of the preparation of my materials, but one can't do abatement well on a month-by-month basis.

You know, a seven-year-old girl who has lost her father or a 35-year old man who is wondering if he can maintain sobriety need to have security that the programs and services that they're accessing will be there after the first of the year. So, I think that the programs and services that I have outlined are -- are vital to provide the security and the stability for long-term abatement in the community.

The other point that I would make is that, as Congressman Delaney once said, the cost of doing nothing is not nothing. In other words, there are enormous, not just social and psychological, but economic costs of inaction and there's a very good evidence base to support the economic value of the sorts of programs that I've discussed. So, I think it's important.

You know, my sense from -- from reviewing the materials that I've reviewed and speaking with individuals that I have spoken with is that this really has been an existential threat for the County and the City and that I think without a scale-up and an increase in the scope and breadth and extent of services the opioid epidemic may remain the defining legacy of this community in years to come.

MR. HESTER: Your Honor, we would object and move

to strike the last portion of Dr. Alexander's testimony on the same basis that we've discussed this morning, that he has not purported in his opinions and in his expert report to evaluate the incremental need or scaling up beyond what's already been done. He's not analyzed that question.

THE COURT: Ms. Singer?

MS. SINGER: Your Honor, I think that there is a mis-impression that's been created here. What Dr. Alexander has previously testified to and what he lays out in the report is the need for a comprehensive plan to address the opioid epidemic. That's what he's just testified and what he testified to was the seriousness of the issue.

THE COURT: I'll overrule the objection.

(Pause)

BY MS. SINGER:

Q. All right. Dr. Alexander, do Huntington and Cabell County have the institutional capacity to carry out a program this large and complicated as you've laid out in the abatement plan?

MR. HESTER: Same objection, Your Honor. He did not purport to analyze the capacity in the community for the services being offered. He did not include that in his opinion and we did not have a chance to depose him on this.

MS. SINGER: If the Court would like to hear the question again, and I know you have it in front of you, it

was not what is needed beyond what exists. It's whether the County --

THE COURT: Does the County have the institutional capacity to carry out a program this large and complicated.

MS. SINGER: Which doesn't relate, Your Honor, to what programs already exist.

THE COURT: Overruled.

Can you answer the question, Dr. Alexander?

THE WITNESS: Of course. I think that the community does. My experience from examining materials that I have examined and engaging with the experts on the ground, the community is fortunate to have any number of committed hard-working individuals ranging from, you know, Mayor Williams to Jan Rader and all of the others that I have had the fortune to speak with.

There are many programs and they, frankly, have done a remarkable job with not very much, but if you examine the magnitude of the opioid epidemic, it's clear, and I believe that I have made it clear, that much more is needed.

In addition to these building blocks which include Lily's Place, Project Engage, the drug courts, the Quick Response Team and a number of other programs, there are also major organizations, Marshall Health, Marshall University, Cabell Huntington Hospital, St. Mary's Hospital, the Prestera Treatment System. And so, I think that these large

organizations will be important and contribute to my confidence that the community does have the constitutional capacity to pull this off.

Q. And last question, Dr. Alexander. Has anything in the scale of the abatement plan you've laid out been tried before?

A. Well, these -- these programs and interventions are being used all around the country all of the time. And I think in my earlier testimony, I emphasized that one of the silver linings is that we have so much evidence.

This is not a moonshot. This is not something that is beyond the capability of this community. But it will take hard work, and it will take resources, and it will take coordination and planning such that I speak to in the materials that I've provided.

I think if the -- Cabell County and the City of Huntington implement this plan, I think that they have every reason to look forward to many, many good years ahead and I believe that there's not a moment to lose.

MS. SINGER: So, Your Honor, subject to the reservation Mr. Majestro laid out and for the efficiency of the Court's time and the witness's, my preference would be to pass the witness at this point subject to the Court's ruling on the evidentiary issue tomorrow morning.

THE COURT: Okay.

MR. HESTER: And, Your Honor, just for the record, we maintain our objection to any suggestion of re-calling Dr. Alexander.

THE COURT: I understand, Mr. Hester. Thank you.

MS. SINGER: Thank you, Your Honor.

Thank you, Dr. Alexander.

MR. HESTER: And, Your Honor, one other point I might make, as the witness has been passed to us now, there are elements of Dr. Alexander's methodology, assumptions he's made and the like that have not been explored on direct examination.

We would intend to cross examine on those points, but we certainly didn't want to waive our objection to the introduction of this evidence by doing so, but we feel constrained to examine some of those methodologies and assumptions because, if the Court admits this evidence, then Mr. Barrett is going to be relying on it.

THE COURT: Well, I understand, and I think you're entitled to do that.

Mr. Ackerman?

MR. ACKERMAN: Before defendants begin cross examination, Your Honor, there is one issue we would like to address and I think it makes sense to address it now rather than interrupting the cross examination.

At 10:45 p.m. last night, we received a supplemental

list of 51 exhibits from McKesson and, based on the contents, we believe McKesson intends to use some of those documents in the cross examination of Dr. Alexander.

Your Honor, if that is the case, we object to the use of any of those documents because the disclosure at 10:45 p.m. violates the parties' stipulation with the joint trial exhibit stipulation, which is at Docket 1029. Docket 1029, Paragraph 3(b), which is on Page 6, provides that cross examination documents must be listed on the exhibit list or disclosed by 7:00 p.m. on the day prior to their expected use at trial. These documents were disclosed at 10:45.

The issue, frankly, that we are concerned with is that we just had a week off of trial and all the sudden received this disclosure at 10:45 on Sunday when defendants could have disclosed this at any point during the off week and given us the notice that the parties bargained for in the stipulation and that the Court ordered.

So, Your Honor, we would object to those documents. When they come up, we will bring them up. Certainly, Your Honor, with respect to the stipulation you have chastised the plaintiffs when we have been accused of gamesmanship. We have done our best throughout the last four or five weeks of trial to provide disclosures to defendants consistent with this stipulation and we were surprised to have received

the supplement last night.

MR. HESTER: Your Honor, the stipulation only provides that we can use exhibits in cross examination if they're on the exhibit list and we put them on last night.

I would add two points. First, that we received the defendants' demonstrative that they've used today -- I'm sorry -- the plaintiffs' demonstrative that they used today at 10:30 or so last night. We also received a set of documents that they planned to use with Dr. Alexander last night.

We're doing the best we can under a lot of time pressure to keep our exhibit list up to date. That's all we've done.

And the exhibit list is not -- there's nothing in the stipulation that provides for any timeliness in terms of having documents on the exhibit lists. As long as we've supplemented the exhibit lists, we can use them on cross examination under the terms of the stipulation, as we understand it.

MR. ACKERMAN: With all due respect, Your Honor, that is not what the stipulation says. The stipulation at Paragraph 3(b), Page 6, says the parties must include on their exhibit lists all exhibits they intend to use on cross examination, as Mr. Hester said.

The very next sentence says the parties may use on

cross examination exhibits that were not previously identified on an exhibit list, but only if they disclose those previously unlisted exhibits that they reasonably and in good faith believe may be used to cross examine a witness by 7:00 p.m. on the day prior to their expected use at trial.

The problem we have, Your Honor, and, quite frankly, if this were one or two exhibits, this probably wouldn't be an issue. We received a set of 50 exhibits last night. They were voluminous. There was no way for us to review them having received them at 10:45 p.m.

The other point I would make with respect to the demonstrative, there is no provision in this stipulation relating to demonstratives. We have been providing defendants copies of our demonstratives the night before when they are ready but, frankly, we have been waiting to get their objections to exhibits because their objections to exhibits sometimes affect what goes in a demonstrative and that's exactly what happened last night.

MR. HESTER: Your Honor, we received the Plaintiffs' exhibit list that -- of documents they plan to use with Dr. Alexander at, I believe, 7:00 last night. And so, by 10:30, we supplemented our exhibit list to include exhibits that were responsive to what had been disclosed to us.

The plaintiffs' exhibit list included a number of documents that were not on Dr. Alexander's reliance list. They were new materials. And we have undertaken to provide these exhibits as quickly as we can. It was three and a half hours after we had the disclosure from the plaintiffs.

THE COURT: Well, let's go forward and see where we get.

MR. ACKERMAN: Okay. We will be objecting to use of those documents if they are -- if they come up.

THE COURT: Well, I will take a look when it comes up.

Mr. Nicholas?

CROSS EXAMINATION

BY MR. NICHOLAS:

Q. Good afternoon, Dr. Alexander. How are you?

A. Fine, thank you.

Q. Good. I hope you're enjoying all of this legal argument back and forth. I don't have very many questions, but I have a few.

And I want to shift over to sort of a new topic, which is the -- the people that are covered, the population that's covered by your proposed abatement plan, and my first question is simply this: Is it correct that the abatement plan that you set forth would provide services and treatment to individuals who never took prescription opioids?

A. Yes, it is.

Q. And do you agree -- I think -- well, I think you will, but do you agree that there are individuals in Cabell County and in the City of Huntington who have OUD who have, in fact, never used a prescription opioid?

A. Yes, I do.

Q. And there are people in Cabell County and in the City of Huntington with HIV who have never used a prescription opioid; isn't that correct?

A. Well, yes, it is, but my estimates of needs for people with HIV are only limited to those that I estimate have HIV as a result of the opioid epidemic.

Q. Fair enough. Would you have the same answer for me with regard to infectious endocarditis and Hepatitis C?

A. Yes, I would.

Q. Okay. Playing this out just a little bit further, if someone never touched a prescription opioid and in the future started using heroin, or fentanyl, or illegal fentanyl, or carfentanil and developed Opioid Use Disorder as a result of that use, treatment for their Opioid Use Disorder would be covered under your plan, correct?

A. Yes. My plan is to abate the opioid epidemic in the community and I don't think that that can be done without -- I think there's one epidemic, not two; an opioid epidemic, not a prescription epidemic and a fentanyl and heroin

epidemic.

Q. I understand. So, your plan would address people whose Opioid Use Disorder was caused by use of -- would be -- would relate back, in your view, to the use of prescription opioids and it would also cover people who simply started on illegal heroin, fentanyl, carfentanil and continued on in that vein, correct?

A. Yes. That latter population representing a small proportion of the entire group of people that use opioids in the community.

Q. And your plan for services and treatment would also include folks who simply misused opioids, correct, misused prescription opioids?

A. Well, non-medical use of prescription opioids is an important dimension of the opioid epidemic. So, the plan would address that.

Q. Understood. And, Dr. Alexander, you are not offering any opinions here today that are specific to any of the three distributor defendants; is that correct?

A. Yes, that's correct.

Q. And your proposed abatement plan does not recommend any changes to the distributors' business practices in any way; is that correct?

A. Well, my abatement plan addresses one of the key drivers of the epidemic, which is the oversupply of

prescription opioids, and you don't get prescription opioids that don't come through the hands of a distributor. You have a manufacturer here and a patient here and every single one of those 40 million prescriptions that I believe entered Cabell County and the City of Huntington passed through the hands of a distributor.

Q. And every one of those however many prescriptions you just referenced passed through the hands of a licensed physician, correct?

A. Well, I would guess that the vast majority did, although there is -- there's the potential for diversion from pharmacies and the like, also.

Q. Okay. But your -- but would you agree with me that the supply of opioids is caused -- that the cause of the supply of opioids is the number of prescriptions that are written?

A. Well, the oversupply of opioids in Cabell County and the City of Huntington is a function of many factors.

Q. All I'm asking you is whether, taking however many factors you want into account, they all trace back to the fact that a licensed physician wrote a prescription?

A. Again, I believe that there is some diversion of -- there's evidence that there's diversion of opioids upstream from prescribers, but there's no question that because of a false assurance that prescribers have had both regarding the safety of opioids, as well as their effectiveness for

chronic non-cancer pain, that opioids have been oversupplied in the community through the hands of prescribers.

Q. In that you are now referring to the issue of standard of care; is that correct, the change in the standard of care?

A. Well, I'm just referring to the fact that historically, as I discussed during my earlier testimony, opioids have been oversupplied in part because of underestimations of their risks and overestimations of their benefits.

Q. Your abatement plan does not recommend any new licensing requirements for distributors, does it?

A. My abatement plan doesn't include the entire universe of potential methods that might be used to affect the opioid epidemic in the community. What I focused on were interventions that could be implemented by the County and by the City for which there was good evidence, a robust scientific evidence base, and interventions that I thought would be most likely to bring about the greatest impact.

Q. So, your abatement plan does not recommend any new licensing requirements for distributors, correct?

A. It -- it's correct because I focused on interventions that could be implemented by the County and by the City.

Q. And your abatement plan does not propose any new reporting requirements for distributors; is that correct?

A. Once again, the interventions that I focused on, some

of them do -- are intended to decrease the oversupply of opioids through, for example, promoting a more evidence based prescribing and reducing -- and educating the general public and patients regarding the appropriate role of opioids, but I focused on interventions that can be implemented by the County and City.

Q. I'm asking a pretty narrow question, Doctor, and I appreciate that you're giving a more fulsome answer, but all I'm asking you is whether -- all I want to do is confirm that your abatement plan, as described in your expert report, does not propose any new reporting requirements for distributors?

MR. ACKERMAN: Objection, asked and answered.

MR. NICHOLAS: I don't think we've had an answer yet.

THE COURT: I don't think we have. Overruled.

THE WITNESS: It does not.

BY MR. NICHOLAS:

Q. And your abatement plan does not propose any new physical security requirements for distributors; isn't that correct?

A. Yes, that's correct.

Q. Okay, thank you. Just a few more questions.

You were not asked by the -- by the plaintiffs in this case to examine the sources of funding for currently

existing programs; isn't that correct?

A. I was asked to learn as much as I could about the programs and services that are offered on the ground. So, in some cases, that included my learning about their funding sources, but it wasn't the primary focus of my activities.

Q. Well, were you asked to provide an opinion as to the sources of funding for currently existing programs in connection with your expert report?

A. No, I was not, but I believe your last question was asking whether I was asked to learn about them. This one about whether I was asked to provide an opinion, I was not asked to provide an opinion about the funding sources.

Q. Okay. I think I read the same question twice. At least, I hope I did, but you answered me the second time, so that's fine.

And you are not offering any opinion as to whether Cabell County -- whether Cabell County or the City of Huntington has -- has had to fund any of the programs that they have put in place, correct?

A. I'm not offering an opinion about funding. Again, I examined the programs carefully and that often included learning about their funding sources, but I have not provided an opinion in a legal sense regarding the funding status of these programs.

Q. And you're not opining either as to whether Cabell

County or the City of Huntington would need to pay for any aspect of your abatement plan should it be put in place; is that correct?

A. I'm sorry. Can you ask that once more, please?

Q. Yeah. Isn't it also correct that you are not providing an opinion as to whether Cabell County or the City of Huntington would need to pay for any aspect of your abatement plan should it be put in place?

A. Yes. I'm not offering such an opinion, although I'll note that my conversations with experts on the ground and my review of materials make it more than clear the funding constraints and the resource constraints that the community faces.

Q. You have no -- you offer no opinion as to who should pay or how payment should be allocated; isn't that correct?

A. Well, that may be incorrect. Can you say what you mean by allocated?

Q. Well, yeah, how it should be -- well, you know what? That's a fair correction. I'm going to limit my question. I accept your comment and I'm going to try again.

You are offering no opinion as to who should pay for your abatement program, correct?

A. That's -- that's correct.

Q. Okay. And I take it you are aware that many of the programs in your plan are already paid for by the federal

government?

A. I -- I'm aware of sources of funding for some of these programs and that includes funding, I believe, from the federal government, and state government, and local government, yes.

Q. And most specifically, I guess, you're aware that treatment costs, including medication assisted treatment, are paid for through Medicaid; is that correct?

A. Well, for people who are Medicaid eligible and utilize the services, it's correct that, you know, sort of tautologically that those services would be paid for by Medicaid, but I think the important thing to consider is that that is a far cry from the totality of treatment services that are needed for the community.

Q. Treatment costs are also paid through private insurance sometimes; isn't that correct?

A. Yes.

MR. NICHOLAS: Okay. I have no further questions. Thank you very much.

CROSS EXAMINATION

BY MR. HESTER:

Q. Good afternoon, Dr. Alexander.

A. Good afternoon.

Q. We met a few weeks ago on Zoom. My name is Timothy Hester, representing McKesson. Good to see you in person.

A. Thank you.

Q. Dr. Alexander, if I could ask you, do you still have with you the Plaintiffs' Exhibit 41907, which is the Monument Analytics, the redress model that you developed?

A. Yes.

Q. Let me ask you to go to the front page of that, please. And, Dr. Alexander, on that front page you list out a number of the abatement categories; is that right?

A. Yes, it is.

Q. And let me just make clear how this is all meant to fit together. I take it that you have developed these categories of the abatement plan, correct?

A. Yes.

Q. And then, Mr. Barrett has actually developed the costs for each of these categories, correct?

A. Well, I've provided unit costs, but Mr. Barrett has calculated the total costs for a given category.

Q. And you have not done that calculation of total costs, correct?

A. Yes, correct.

Q. And so -- so, Mr. Barrett takes some of your unit costs. He also takes unit costs from Dr. Young. And he developed some of his own unit costs and does the math to come up with the numbers, correct?

A. Yes.

Q. Okay. So, I wanted to make sure that the record is clear on what these categories cover.

MR. HESTER: And could we pull that up?

BY MR. HESTER:

Q. I think everybody probably has it. You have it, Dr. Alexander. I hope the Court has it, too, the category listing, but let's just wait a minute.

MR. HESTER: Sorry, Your Honor.

THE COURT: That's all right.

MR. HESTER: This will make it a little easier, I think, for everybody to follow.

BY MR. HESTER:

Q. So, let's go to the first page, please. We need to go back a few tabs. So -- so, Dr. Alexander, so we have this up on the screen so we can all work through this together. So, this -- this front page here is listing all of the categories of your abatement plan, correct?

A. Yes.

Q. And so, you reviewed some of them this morning in your direct examination and I won't spend a lot of time on those, but I do want to make sure we've got a clear record on what all of them entail.

So, the first one under Category 1, which is entitled Prevention-Reducing Opioid Oversupply and Improving Safe Opioid Use, do you see that?

A. Yes, I do.

Q. And the first item there is Category 1-A, Health Professional Education. Do you see that?

A. Yes.

Q. And that's what you discussed this morning, the education of doctors and other prescribers about risks and benefits associated with opioids; is that correct?

A. Well, as well as how to identify and treat Opioid Use Disorder.

Q. Well, the Health Professional Education is focusing particularly on educating doctors and other prescribers, correct?

A. It's focused on educating healthcare providers, but not just about the oversupply of opioids, but also about the identification and treatment of people that have Opioid Use Disorder.

Q. Right. Fair enough. So, but the point is, the focus of this category is on better education to doctors and other prescribers?

A. Yes, healthcare providers that could include nurses and, you know, EMS technicians, and other healthcare providers.

Q. And you're aware that the West Virginia State Board of Medicine engages in continuing medical education, correct?

A. Yes, I am.

Q. And you're aware that one of the continuing medical education programs they provide relates to opioid prescribing and risks and benefits, correct?

A. Yes. I believe that to be the case.

Q. The next item is Category 1-B, Patient and Public Education. Do you see that?

A. Yes.

Q. And that entails a mass media campaign to educate the public about opioid risks and benefits; is that correct?

A. Correct.

Q. And would include a mass media campaign that would use platforms such as TV, radio, billboards, print and social media; is that correct?

A. Yeah. I mean, some combination of those, yeah.

Q. And you're aware that a mass media campaign on opioids has already been implemented across the State of West Virginia, correct?

A. I'm aware that there's been some -- some effort to conduct what are sometimes called social marketing campaigns in this state, yes.

Q. And, in particular, you're aware that the CDC conducted a mass media campaign specifically implemented in the State of West Virginia related to the risks and benefits of opioids?

A. I'm not aware of the details of that.

MR. HESTER: Could I pull up Dr. Alexander's deposition from September 18, 2020?

BY MR. HESTER:

Q. Dr. Alexander, do you remember being deposed in this case in September of last year?

A. Yes, I do.

Q. And you testified under oath; is that correct?

MR. FARRELL: Objection, Your Honor. This appears to be improper refreshing of his recollection. He testified -- his answer was I don't recall. Perhaps if he could be refreshed before being impeached would be the proper procedure.

THE COURT: When did he say he didn't recall? I don't understand.

MR. FARRELL: Maybe I mis-heard him when the question was asked whether or not he testified. His answer was I don't recall.

MR. HESTER: I thought he said he wasn't aware of it.

THE COURT: Overruled. Go ahead.

BY MR. HESTER:

Q. Let me show you, Dr. Alexander, Page 318, Lines 13 to 17, please. And the question was asked, and are you aware that, in 2017, the CDC conducted a mass media campaign -- campaign itself, and it was specifically

implemented in the State of West Virginia? And your answer was, yes, I am. Do you see that?

A. Yes, I do.

Q. And was that a true and accurate statement when you made it in your testimony?

A. Yes. I have no reason to believe otherwise.

Q. Let me ask you to turn now to Category 1. See if we can go back to that summary of categories. Category 1-C is Safe Storage and Drug Disposal. Do you see that?

A. Yes, I do.

Q. And that entails collection sites for unused pills, such as take-back boxes and safe storage practices; is that correct?

A. Yes.

Q. And you're aware that there are multiple pill collection sites in Huntington and Cabell County already, correct?

A. Yes. I mean, I think in each of these domains there may be some element of something that's been done, but -- and I'd be happy to discuss in more detail any of them, but the presence of some intervention to address some aspect or some dimension of one of these problems is a far cry from the abatement plan that I've proposed.

MR. HESTER: Your Honor, I would move to strike as not responsive.

MR. ACKERMAN: And we would oppose, Your Honor.

MR. HESTER: Overruled.

BY MR. HESTER:

Q. But you are aware that there are multiple pill collection sites in Huntington and Cabell County, correct?

A. Yes, I am.

Q. The next item is Category 1-D, which is Community Prevention and Resiliency. Do you see that?

A. Yes.

Q. And that entails coalition building and focuses on promoting community resiliency, correct?

A. Yes.

Q. And you're aware that this is already an ongoing activity in the community to promote resiliency, correct?

A. I'm not aware of the details of the programs, but I would also point to my earlier response in addressing that question.

Q. But you are aware that there are resiliency efforts and community building efforts already underway in Cabell and Huntington, correct?

A. There -- I am aware and, absolutely, my conversations with experts made it more than clear from the experts on the ground that they have worked very hard to try to maintain the fabric of the community.

Q. Let me ask you to point -- to look at the next item,

please, Category 1-E, which is harm reduction, and this entails syringe services programs to provide clean needles for IV drug users, correct?

A. Well, among other things. It also includes naloxone. Naloxone may be featured separately, but harm reduction programs often also include naloxone, as well as fentanyl testing to allow for people to know if their opioids that they may be using contain fentanyl.

Q. Right. Naloxone is culled out separately in your plan, correct?

A. Yes, it is.

Q. Let me -- I just want to focus on this one, though, harm reduction. One piece of the harm reduction category that you are calling for is syringe services programs that would provide clean needles for IV drug users; is that correct?

A. Well, these programs do far more than just give people needles. I mean, they offer people access to care. They screen for sexually transmitted infections. They offer people access to mental health counseling services and the like. But, yes, one of their many services is to provide needle exchange.

Q. And another is fentanyl testing for IV drug users; is that correct?

A. Yes.

Q. And that would allow IV drug users to test for fentanyl and heroin or other drugs that they're injecting, correct?

A. Well, yes, it would be to allow for them -- it may not be that they're injecting. It could be counterfeit pills, as well, that have hurt and killed lots of people. And so, fentanyl testing allows for them to identify products that are contaminated with fentanyl.

Q. So, it would be people who are using illicit drugs testing for whether they have fentanyl, correct?

A. Yes.

Q. Let me ask you to look at Category 1-F, Surveillance, Evaluation and Leadership. Do you see that one?

A. Yes, I do.

Q. And this entails the collection of data on the opioid epidemic; is that right?

A. Among many other things, yes.

Q. And that's already being done in Cabell and Huntington, correct?

A. Again, I would be happy and, at some point, would request to be able to speak in a little bit more full fashion, you know, to provide a more -- a single more comprehensive response to these queries but, yes, some element to evaluation and leadership is currently being provided in Cabell County and the City of Huntington.

Q. And so, for instance, the Division of Addiction

Sciences is playing a role in that, correct?

A. At Marshall University?

Q. Yes.

A. Yes, I believe so.

Q. And Scott Lemley is also involved in those efforts, correct?

A. I would want to refresh my memory regarding the particular names of individuals.

Q. You are aware that the community has established an excellent foundation for data collection and surveillance, correct?

A. Well, I -- I think that there is a strong foundation, but I think there's a lot more work that remains to be done.

Q. Well, let me ask you the question again. Has the community established an excellent foundation for data collection and surveillance?

A. Again, my response would be that the community has a strong foundation and a lot more work needs to be done.

Q. Let me ask you to look at Category 2, please. We'll keep moving through this. This is under your heading for Treatment Supporting Individuals Affected By the Epidemic; is that right?

A. Yes.

Q. And your first item, Category 2-A, is connecting individuals to care. Do you see that?

A. Yes.

Q. And this entails programs to assist people with OUD in getting care and treatment, correct?

A. Yes. And accessing care, yes.

Q. And so, that would include things like help lines that would provide treatment options, transportation for them to get to treatment, and other -- and other services to connect people who have OUD to care, correct?

A. Yes. And -- and maintain their engagement in care. I talked about relapse earlier today. And so, you know, things like peer recovery coaches and other supports that help people to maintain sobriety are important components of this.

Q. And it would be intended for people who have OUD who would need those connections to care, correct?

A. Yeah, although there's no reason that it couldn't also be used by people that were suicidal and thinking about ending their lives because of the trauma that they have experienced with family members that may have active addiction. There's no reason it couldn't be used by people that are using opioids non-medically but don't fulfill formal diagnostic criteria for opioid addiction. So, I guess I view the population that could benefit from this as larger than just the people with outright addiction.

Q. But you have -- in terms of your modeling, you've

modeled this around the OUD population, correct?

A. Yes, I believe that's true.

Q. Let me ask about the next one, Category 2-B, Treating Opioid Use Disorder. This -- I think, you've discussed this before. Just to confirm, this entails the range of treatment options for people with OUD, correct?

A. Yes.

Q. And then, Category 2-C, Managing the Complications Attributable to the Epidemic, this relates to complications relating to IV drug use among people with OUD, correct?

A. Yes.

Q. And then the next one, Category 2-D, Workforce Expansion and Resiliency, this entails expanding the workforce of healthcare professionals needed to treat people with OUD or chronic pain, correct?

A. Yes. So -- or their family members or otherwise to address the epidemic. I mean, again, if you think about the need for social workers in the school system, they're not there necessarily to treat teenagers that have Opioid Use Disorder, although there may be such teenagers, but the workforce expansion is needed beyond the healthcare workforce to treat people with opioid addiction. My point is that this is a much bigger problem than just a problem of addiction alone.

Q. But this category, which is then modeled by Dr. -- or

used by Dr. Barrett to develop costs, this category is focusing on expanding the workforce of healthcare professionals, correct?

A. That's correct.

Q. And it would be healthcare professionals to treat people with OUD or other afflictions, correct?

A. Well, I -- it would be helpful. I mean, there are many pages, as you know, and thousands of cells and inputs to these -- to this model. So, it would be helpful for me to review this if you would like a definitive answer on which specific occupations are in or out of this category.

Q. But the general -- the general category covered by this -- I'm sorry -- the general group of people covered by this, this is to expand healthcare professionals in the workforce, correct?

A. It's to sure up the community workforce, the number of workers in the community that are recruited, and maintained, and taken care of, so that they can help to address the opioid epidemic. And I think that the majority, if not entirety of these, are in the healthcare space.

Q. Let me ask you to look at Category 2-E, Distributing Naloxone and Providing Training. This is one you discussed before, correct? It relates to the distribution of naloxone in the community, correct?

A. Yes, that's right.

Q. And you're aware that the community has already been involved in extensive efforts to distribute naloxone in the community, correct?

A. I'm aware and I've reviewed those programs carefully and I just want to reiterate briefly that the fact that there may be a -- some element of activity in one of these categories doesn't at all speak to whether or not that level of activity is adequate, adequate now, or adequate for the future.

Q. Do you agree, Dr. Alexander, that there has been an extensive use of naloxone in the community?

A. I believe there has and I believe it's saved many lives.

Q. Let me ask you to look at Category 3, please, which is Recovery-Enhancing Public Safety and Reintegration. Do you see that one?

A. Yes, I do.

Q. And under the first one, 3-A, public safety, that focuses on enhancing police capabilities to address drug crime, correct?

A. Yes. That's a topic that -- it was made very clear to me in speaking with individuals on the ground that that was important to them.

Q. So, but it is -- just to be clear on what the category covers, it's expansion of police capabilities, correct?

A. Yes.

Q. Let me ask you to look at Category 3-B, the Criminal Justice System. That entails enhancing the Cabell drug court and other programs in the justice system; is that correct?

A. Yes, including the -- increasing the availability of treatment for addiction within the criminal justice system because a large proportion of individuals with OUD or a significant proportion cycle in and out of the criminal justice system in a given year.

Q. So, an example of that would be the LEAD program, for instance, correct?

A. Yes, or people that are incarcerated and don't have access to FDA approved safe and effective treatment for addiction.

Q. Let me ask you to look at Category 3-C, Vocational Training and Job Placement. Do you see that one?

A. Yes, I do.

Q. And that entails creating employment opportunities for people with OUD, correct?

A. Yes, and supporting employers and the local economy simultaneously.

Q. And then, Category 3-D, Reengineering the Workplace, that entails encouraging workplace opportunities for people with OUD or who are in recovery, correct?

A. Yes. Again, my conversations with experts on the ground underscore the importance of those sorts of initiatives.

Q. Let me ask you to look at Category 3-E, Mental Health Counseling and Grief Support. That entails expanding mental health services and grief support for individuals with OUD, families who have lost people to overdoses, and children affected by the epidemic, correct?

A. Yes, it does.

Q. Category 4 is our last one, Addressing Needs of Special Populations, and I believe you talked about this a little bit. At a high level, these are special populations that are adversely affected by opioid use and misuse and by OUD, correct?

A. Yes.

Q. So, the first one, Category 4-A, Pregnant Women, New Mothers, and Infants, do you see that one?

A. Uh-huh.

Q. And that focuses on pregnant women with OUD and babies born with NAS, correct?

A. Yes.

Q. Category 4-B, Adolescents and Young Adults, that addresses the impact of opioid use, addiction and overdoses on children and adolescents, correct?

A. Yes, including the ripple effects throughout families

and the intergenerational effects that I spoke to briefly earlier.

Q. And then you have one which may be related, Category 4-C, Families and Children. That entails programs to support orphans or other children that are adversely affected by OUD and overdoses, correct?

A. Well, and their families and loved ones.

Q. And you're aware that the State of West Virginia runs foster care and adoption services, correct?

A. I don't recall with certainty, but that sounds right to me.

Q. Let me ask you to look at Category 4-D, Homeless and Housing Insecure. Do you see that one?

A. Yes.

Q. And that focuses on individuals with OUD who are homeless or housing insecure, correct?

A. Yes, and it's vitally important. I was shocked at the rate of homelessness and housing insecurity among individuals with, in this instance, intravenous opioid use in the community. The numbers were quite surprising to me and very high.

Q. And then, Category 4-E, Individuals With Opioid Misuse, do you see that one?

A. Yes.

Q. And I believe you talked about this before, but that

focuses on individuals who misuse opioids, including heroin, or fentanyl, or prescription opioids who do not yet have OUD, correct?

A. Yes. I mean, I think most of what I've discussed in my expert report and would focus on is individuals with non-medical prescription opioid use, but -- but there may be individuals that use heroin or illicit fentanyl but don't fulfill formal diagnostic criteria for addiction.

Q. Dr. -- I'm sorry -- Mr. Barrett is going to take these categories and develop a total cost number, correct?

A. I don't know the details of what Mr. Barrett will do, but that's my general understanding.

Q. You've never talked to Mr. Barrett about what he does with what you've developed?

A. I have had -- I believe I've had a conversation or two with him and my understanding is that he's to develop a total cost estimate based on what I've proposed, but I don't -- I don't know the details of his methodology or approach.

Q. Let me ask you to turn to a new topic, please. I'd like to talk about the OUD population that you've discussed previously. Just to confirm, you start with an estimate of the OUD population in Cabell and Huntington from 2018; is that correct?

A. Yes.

Q. And that -- that number, that 2018 OUD estimate, was

developed by Dr. Katherine Keyes; is that right?
A. Yes, that's correct.
Q. And so, in other words, when Dr. Keyes provides that OUD estimate for 2018, those are people who have OUD as of 2018, correct?
A. I believe that's the case.
Q. Is so, in other words, it would include people who use opioids such as heroin, or fentanyl, or misused prescription opioids and then developed OUD at sometime in the past, 2018 or previously, correct?
A. Well, I believe it's an estimate of individuals with active Opioid Use Disorder in the community as of 2018.
Q. So, maybe I'm just misstating almost a truism. I think you used the word tautology before, but the truism that you -- these are people who had used opioids in the past and had developed OUD and active OUD as of 2018, correct?
A. Yes.
Q. And then -- so, your starting population is, therefore, based on the assumptions that Dr. Keyes applied in developing her OUD population of 8,252 people, correct?
A. Well, it's not just -- it's not as if she just handed off a number to me. I mean, I -- at the time that she was developing her estimates, I reviewed them and I reviewed her methodology and my team independently considered a number of alternative approaches. And I triangulated those with her.

And I had confidence at the time that her approach was methodologically sound.

Q. Is there anyplace in your report where you say you triangulated and tested what Dr. Keyes did in developing her OUD numbers? Is that stated anywhere in your report?

A. I don't recall the details of what I've stated in my report, but I -- I don't recall that specific statement, no.

Q. It's not stated in your report, is it?

MR. ACKERMAN: Objection, asked and answered.

MR. HESTER: I don't think so.

THE COURT: Overruled.

Can you answer the question?

THE WITNESS: It would be helpful to review my report. I mean, my report is, I don't know, 40, 60, 80 pages. I don't know sitting here whether or not -- to what degree I spoke to the -- to my having vetted Dr. Keyes' estimate.

MR. HESTER: Let me give you your report.

MR. FARRELL: Judge, to hopefully save some time with the review, can I make an objection on relevance? I fail to see why it's relevant whether or not an answer elicited on cross examination is contained within his expert witness report.

MR. HESTER: Well, Your Honor, I think it's a quite important point because the witness had never

previously said that he had undertaken any check of what Dr. Keyes did. He had previously, as I understood it, testified that he was relying on what Dr. Keyes gave him.

THE COURT: And you're going to refresh him with it?

MR. HESTER: Yes. I thought I would refresh him. May I approach, Your Honor?

THE COURT: Yes. If you saw your report, do you think you would remember?

THE WITNESS: Well, I would want to review it and I'm sensitive to your time, Your Honor, and everybody else's. I think the key thing to say here is that -- that I did speak with Dr. Keyes, that at the time that she was developing her estimates, I agreed with her approach and that -- and that I -- but I didn't do an -- you know, and that I and my team considered a number of different ways of estimating the population in the county and, ultimately, I used the approach that Dr. Keyes pursued.

MR. HESTER: I think that solves my problem, Your Honor.

THE COURT: I think it does, too.

BY MR. HESTER:

Q. But you did rely to start on the number that Dr. Keyes gave you, correct?

A. Well, yes. I used it in my report, so in that sense,

yes, I did. I did use her estimate in my report.
Q. And so, if the estimate provided by Dr. Keyes of the starting OUD population is too high, then the population numbers in your redress model would also be too high, correct?
A. Yes. And if those numbers are too low, then the population numbers would be too low. I mean, there is a possibility of either, but the point is that I and my team carefully reviewed different methods of estimating the population and the county and ultimately -- and that included reviewing with Dr. Keyes her approach and, ultimately, I'm confident that the approach that was used was a valid approach that reflects the practices of epidemiology.
Q. But it -- but let me just confirm my point though. If the number from Dr. Keyes is too high, then the OUD numbers on which you rely in the redress model are also too high, correct?
MR. ACKERMAN: Objection. Asked and answered.
THE COURT: Overruled.
THE WITNESS: If they're too high, then the numbers I relied upon are too high. And if they're too low, then the numbers that I relied upon are too low.
BY MR. HESTER:
Q. And under your model, the starting OUD population from

Dr. Keyes does not remain constant over the 15 years, correct?

A. That's correct.

Q. And some people leave the OUD population, perhaps from overdose, perhaps from some completely unrelated cause of death, perhaps they move away from Cabell Huntington, correct? But it's not going to be a static population over time, correct?

A. Yes. It's a dynamic population.

Q. And you also assume that there are new people who develop OUD over the 15-year period covered by your redress model in addition to your starting population, correct?

A. Yes.

Q. And just to be clear on the -- on the numbers, Dr. Keyes gave a number of 8,225 people. The first year in your redress model is 7,882. That's the start of the scaling down of the OUD population, correct?

A. Correct.

Q. But you're assuming that new people will develop OUD during the 15-year period and that starting population in your redress model of 7,882 does not stay static, correct?

A. Well, the individual people are not necessarily the same people. I mean, there are people, just like if you looked at all smokers today and took everybody with lung cancer, there's a group that has lung cancer now and there's

a group that's going to develop lung cancer in three or five years.

So, if I was addressing the lung cancer problem, I would want to design policies that account for the fact that some people will develop lung cancer in the future.

The analogy here is, as one example, there are individuals on chronic high dose prescription opioids now that may not yet have developed opioid addiction, but will by 2024. So, my plan accounts for that.

Q. And let's just make this concrete.

MR. HESTER: If we could put up Tab 2-B of the -- of Dr. Alexander's redress model. It's the model itself, Chris.

BY MR. HESTER:

Q. And if you can go to Tab 2-B, Dr. Alexander, this is not meant to be an eye test, but here's this -- this top line is the OUD population over time, correct?

A. Yes.

Q. And so, your point is that there's some people in that OUD population who come in and out and you're going to have new people coming into that top line population, correct?

A. Yes.

Q. And that might include -- just as an example, that could include a child who is ten years old as of 2021 and has never used opioids begins abusing heroin in 2027 as a

teenager and develops OUD. That -- that child would be included in your OUD numbers, correct?

A. It would, as would someone who is living a happy, healthy life in recovery now in treatment from prescription Opioid Use Disorder who relapses. So, there are any number of scenarios that might land someone in need of treatment in 2024.

Q. So -- so, maybe to go to the generality of the point, you can have people who newly develop OUD in the future for all sorts of reasons and who join the population, you could also have people who drop out of the population, and the top line that we're showing there in the model is the net of those two, correct?

A. It is. There's one opioid epidemic. I mean, there's a lot of dynamics of different directions that people may develop harms and experience harms and, you know, move towards recovery and then backslide, but it's one opioid epidemic. And so, my plan addresses that.

Q. Now, I'm trying to just nail down the methodology and the methodology is when we look at this top line, when we look at the OUD population in your redress model, what we're looking at is a net of people who go out of the OUD population and new people who come in, correct?

A. Yes.

Q. And in other settings you have looked at or projected

the population of individuals who would newly be joining the OUD population, but you were not asked to do so here, correct?

A. Yes, that's correct.

Q. So, you've not estimated how many people would develop OUD each year during the period covered by your model, correct?

A. Right. I've not -- I've not estimated the proportions that are developing opioid addiction anew in each subsequent year.

Q. So, let's again go back and if I could look at 2035. If we look at this number for 2035 of an OUD population of 4,143, we don't know how many people in that population newly developed OUD during the 15 years, as compared to having OUD as of 2018? We don't know that, correct?

A. Well, it's a number that could be derived, but I, sitting here today, could not provide you with such a number.

Q. And you were not asked to do that in this case, correct?

A. Correct.

Q. So, there's no way to separate out the group that has newly developed OUD after 2021, as compared to the group that had OUD as of 2021? That hasn't been done in this case?

A. It hasn't because I focused on abating the overall opioid epidemic and, for that purpose, such a separation or sort of distinction of one population versus another is -- is, in some sense, immaterial. It's not necessary from a public health and public policy perspective.

Q. I'm not trying to be very cosmic. I'm being pretty narrow on the methodology. And in terms of the methodology, you have not separated out in any of these years the people who have newly developed OUD during the 15-year period as contrasted with the people who had OUD at the start of the 15 years? You have not done that, correct?

A. Yes, correct.

Q. So, we've been looking quite a bit at this -- at this line for the treatment population, but other aspects of your plan also assume that people will use opioids and develop OUD in the future, correct?

A. Can you be more specific, please?

Q. Sure. Let me try. So, one of the categories in your plan is 4-A, for pregnant women, new mothers and infants. And so, that is covering infants who develop NAS during gestation, correct?

A. Well, it's covering pregnant mothers and the infants.

Q. Right.

A. But the children would -- yes, the children would be -- the neonates would be infants that are born impacted by

Neonatal Abstinence Syndrome.

Q. So, that could well include a baby who was born to a mother who didn't have OUD as of 2018 or 2021, but begins using opioids at some later time, delivers a baby, and that baby has NAS, correct?

A. Yes, it could. I mean, I think that mother and that baby are just as entitled to services and treatment as any other. And so, what I've focused on is developing a plan that would allow for them to be treated such that, in 15 years, we could have the amount of harms occurring in the community.

Q. But I'm not debating the merits. I'm just trying to understand the method. And the method includes mothers who develop OUD later, after 2021, and who give birth to a baby after 2021 and the mother and that baby are both treated within this plan even though the mother did not have OUD as of 2021, correct?

A. Yes.

Q. And you don't know what percentage of the NAS babies or the mothers encompassed within that part of your plan are -- will be born to mothers who have OUD as of 2021 as compared to mothers who develop OUD later? You just haven't -- you haven't done that analysis, correct?

A. Well, I don't know if I've done the analysis, but I've not done it and submitted it as part of my report for this

case.

Q. Your plan also provides for early intervention, special education and psychosocial treatment for children going forward after they're born with NAS, correct?

A. Yes.

Q. And, again, so that could include a child born to a mother who does not have OUD today, but develops it at some later time from using opioids, correct?

A. Yes. I mean, you know, my -- my discussions with experts on the ground and my review of the materials suggests that there is no shortage of people that are currently in need of services within the community, but you're correct that I didn't net out or try to disaggregate rather, you know, looking forward nine years from now, what proportion of people nine years from now have opioid addiction that developed after, you know, June, 2021.

Q. So, let's go -- let's go back to the treatment section of your report, Tab 2-B, and you discussed on your direct examination that you're starting with a population of 7,882. That's the OUD population, correct?

A. Yes.

Q. And then, you're assuming -- and you discussed this this morning. You're assuming that 40 percent of them receive treatment for OUD in that first year, correct?

A. Yes.

Q. And that would be a net of 3,153 people from that OUD population of 7,882, correct?

A. Yes.

Q. And of those, you're modeling that a population of 2,049 will receive outpatient initiated care, correct?

A. Well, 2,049 will -- I'm developing population level estimates, you know, at a community level for the amount of care that should take place in each of these four levels. And so, I assume to derive those estimates that 2,049 would begin with outpatient care.

Q. And so, you are focusing on the number of individuals who receive that level of care, correct?

A. Yes, although some of the groups in the -- the Rows 5 through 7, that are enumerated 5 through 7 here, will also ultimately receive some outpatient care, as well.

Q. And so, but let's just focus on that outpatient line for a minute. So, the cost for treatment for that outpatient line in your model are calculated by multiplying the daily cost, which I believe you have developed, for each person receiving treatment by 365 days; is that correct?

A. Yes. So, what I'm trying to do here is estimate the total number of outpatient treatment slots. So, I think it's helpful maybe to think of these as slots rather than individual people.

Q. Although your document refers to individuals, correct?

A. Well, it does, and -- and we can toggle back and forth between people and slots, but I just want to highlight the fact that my ultimate goal is to calculate treatment capacity and that doesn't mandate that it's the same, you know, individual 32-year-old woman that's in that treatment slot over an entire year.

Q. Fair enough. So -- so, you're not assuming that the same individuals in that 2,049 are going to receive 365 days of treatment, correct?

A. Yes, correct.

Q. So, some number of people may still stay in treatment the next year in the outpatient category, correct?

A. There are many different patterns. I said this morning there is not a one-size-fits-all approach. Some stay in treatment a short time, some a long time, but I do include here recommendations and in my expert report and underscore that, unfortunately, historically treatment has been shorter than is recommended by many professional societies.

Q. And your assumption is that the outpatient care for that first category, that 2,049 category that you've got listed there, your assumption is it would be 365 days of treatment, correct?

A. It's not an assumption about individual people. What I do is -- is I use that number in order to begin to estimate the overall treatment capacity that's needed in the

outpatient setting.

Q. But let me just be clear. You are assuming 365 days for that category of 2,049, correct?

A. I'm using that number of individuals and -- and knowledge of what the overall treatment goal is of 40 percent and the distribution of people across levels of care to try to estimate how much treatment is needed in the outpatient rather than, for example, residential rehab or inpatient setting.

MR. HESTER: So, let's just scroll down here a little further. If I could scroll down a little further. Keep going. These spreadsheets are hard to work with. Keep going.

BY MR. HESTER:

Q. Down at the bottom there's a cost description and there's an average daily cost for outpatient initiated care times 365 days, correct?

A. Yes.

Q. So, the assumption you're making to come up with cost number is that there would be 365 days of treatment for that population that's included in outpatient, correct?

A. Right, for those treatment slots. So, you can think of it as if there's 249, you know, places or people, but it doesn't have to be the same person, and I multiply that times 365 in order to identify for that year how many

outpatient treatment days are required.

Q. So, let's assume -- and I want you to assume this with me. Let's assume that 80 percent of the people who receive the outpatient treatment enter remission after one year. So, I'm sorry. All of the treatment. So, I want to assume, if we can go back now to the top of this 2-B, and you've got this population of 3,153, do you see that?

A. Yes.

Q. And I want to assume that 80 percent of them enter remission after a year. So, 80 percent of the 3,153. And if we did -- if we make that assumption, that comes out to about 3,000 people who would receive treatment in that first year who enter remission, correct?

A. You're saying --

Q. No, I'm sorry. It would be 80 percent of the 3,153, so it would be about 2,500 people who would enter remission after one year?

A. Well, if you're asking whether 80 percent of 3,153 is 2,500-something, I would want to, you know, run the numbers to be sure, but it sounds about right.

Q. Yeah. I mean, I can give you the numbers. We probably -- we don't need that level of precision, but it's .8 times 3,153 comes out to 2,522. Does that sound about right?

A. Sure.

Q. And so, and if you look over at your next column for

2022, you show again 3,000 people roughly. So, again, if we apply the 80 percent assumption of remission, that would be another 2,500 people who would be in remission after a year, after that second year, correct?

A. Well, I don't -- I don't necessarily agree with the assumption. I mean, I'm not sure of the basis for the assumption.

Q. I'm asking you to assume. I'm asking you to assume. I'm not asking you to agree with my assumption. I'm asking you to assume that 80 percent of people who get treatment go into remission after a year.

A. I -- I'm -- okay.

Q. So, if we assume that, after year one, we've got a group of 2,500 who go into remission. We have another group of 2,500 that goes into remission after the second year. Keep going over. We'd have another group of 2,500 in remission after the third year, and another group in remission of 2,500 after the fourth year, right? If we assumed an 80 percent remission --

A. If you would assume that this was a static population, but we talked about the fact that this was a dynamic population. You're not starting with 3,153 people and putting them in an arena and never letting people in and never letting people out. And, frankly, the assumption that 80 percent of people are fixed or treated or sort of done

after a year is also something that I have a hard time accepting.

Q. I'm asking you to assume, Dr. Alexander. This is the beauty of cross examination, is we get a chance to give you an assumption to test your method. And I'm asking you to assume that. And I'm saying that if we go through four years of this, we would have a population of 10,000 in remission, correct?

A. I mean, using your model, if you assume a closed system, which you appear to be implying, you wouldn't have any more people with addiction in Cabell County. I mean, the entire problem would be licked.

Q. And your point is that people are coming in and out of this population and you haven't estimated how many, correct?

A. Yes, among other things. I mean, I would want to think carefully. This modeling of the epidemic is based on a lot of different dynamics. And the types of epidemiologic modeling that we do have dozens -- sometimes, you know, there may be more than a hundred different perimeters that affect the flow of populations into different compartments. So, I just have a hard time. It seems a little simplistic to imagine that this is a closed population, which it's not, and that we're just pulling people out because suddenly, after one year, 80 percent are sort of fixed or treated.

Q. I'm trying to actually get at a different question,

which is I'm trying to get to a sense that it does imply if you look -- if you assume an 80 percent remission after -- after three or four years, it's going to be -- the group in remission would be larger than the individuals who started with OUD, correct? It would be four times 2,500. It would be 10,000 people, correct?

A. I'm not aware of anybody -- I mean, we're back to the assumption because I'm not aware of recommendations that people only receive treatment for one year. So --

Q. I'm asking to you assume remission after one year, 80 percent.

A. Okay.

Q. I'm asking you to assume that, Dr. Alexander. I know you've made your point.

A. Okay.

Q. But if you assume that, the point is that there must be a number of new people coming into this population if there -- if you assume 80 percent remission, it suggests that there must be new people coming in at a substantial number? There must be a substantial number of new people coming into the population, correct?

A. So, if you -- if you assume what you've asked me to assume and you hold everything else constant, including all of the numbers in this spreadsheet, I could only -- I could only conclude that there are many new people coming in if we

hold all else constant in this hypothetical example.

Q. And so, furthermore, if we hold -- if we continue with 80 percent remission assumption, it would suggest over an 11-year future something like 25,000 new people with OUD coming in after 2021, correct?

A. Again, I would typically, with this sort of question, would spend much more time thinking through the matters and reviewing the numbers and, you know, considering the dimensions of the question, but I believe that applying your assumption and sitting here as I do today, expressing that I would typically take longer to think through these matters, if you hold all else constant about this spreadsheet and you assume that people are being successfully treated at the rate that you suggest, and that it's a closed system, which I have said that it's not, I believe that it would imply -- well, the people would have to be coming from somewhere, so it would have to be that there are new people that are being, you know, choppered into the arena, to use my metaphor.

Q. Well, but it would imply, in other words, something like 24,000 new people coming in with OUD over the period covered by the plan, correct?

A. Again, I would -- without having had the opportunity to consider the matters in much more detail, I believe that it would imply many more new people with Opioid Use Disorder.

Q. And then, if you use my 80 percent assumption, it would be in the range of 24,000 new people, correct?

MR. ACKERMAN: Objection, Your Honor. This is now the fourth or fifth time on this question and I think that the witness has answered it.

MR. HESTER: Okay.

BY MR. HESTER:

Q. We've discussed that your plan assumes that 3,153 people received treatment in the first year, correct?

A. Yes.

Q. And you provided for four differing levels of treatment, but the vast majority are in that regular outpatient bucket, right?

A. Yes. I mean, it's not -- I don't know that I would characterize it as regular, but it's, yes, outpatient care.

Q. And then, for the group of people who receive intensive outpatient treatment, you've assumed -- well, let me be clear again. You've assumed 365 days of treatment for that population of 2,049, correct?

A. Well, yes. In order to estimate the treatment slots in outpatient care, I multiplied 2,049 times 365.

Q. And you also have a group of 725 that will receive 90 days of intensive outpatient treatment and, for that population, you've assumed 2,075 days of regular outpatient treatment, correct?

A. Correct, a much smaller proportion that I suggest, again, in intensive outpatient care.

Q. And the population that's in the rehab and residential treatment group and the inpatient groups, you've assumed 245 days of regular outpatient care a year in addition to those higher levels of treatment, correct?

A. I believe that's correct. And, again, these populations represent even smaller proportions of the overall group, approximately 10 percent and 2 percent respectively.

THE COURT: If you're at a stopping place --

MR. HESTER: This is a good stopping point.

THE COURT: We'll take about a ten-minute break. You can step down.

THE WITNESS: Thank you.

(Recess taken)

(Proceedings resumed at 3:38 p.m. as follows:)

THE COURT: Dr. Alexander, you may resume the stand, sir.

THE WITNESS: Thank you.

MR. HESTER: Your Honor, may I approach?

THE COURT: Yes, you may.

BY MR. HESTER:

Q. Dr. Alexander, we've handed you what's been marked as MC-WV-2162 which is excerpts from the 2018 TEDS

dataset. Do you see that?

A. Yes, I do.

Q. And TEDS was one of the datasets you referred to in your direct examination as something that you relied on; correct?

A. Yes.

Q. And this is a TEDS episode dataset from 2018; correct?

A. Yes, it appears to be.

Q. And I believe you said this before, but TEDS is put together by the Department of Health and Human Services Substance Abuse and Mental Health Services Administration; correct?

A. Yes.

Q. That's commonly known as SAMHSA?

A. Yes.

Q. And TEDS data collects national and state level data for admissions and discharges each year for people receiving substance use disorder; correct?

A. Yes.

Q. And if I could ask you to turn, please, to Page 79 of the document. And you can use for this purpose the numbers at the bottom left.

And this is discussing the median length of stay by type of service -- treatment service and reason for discharge. Do you see that?

A. Just one minute, please.

(Pause)

Yes, I do.

Q. And, so, this reflects that the median stay to complete treatment was 143 days for outpatient medication assisted therapy; correct?

A. Yes. That -- that's right for, for discharges that completed treatment, the median length of stay was 143 days.

Q. And the median stay to complete intensive outpatient treatment was 82 days; correct?

A. Yes, I believe so.

Q. And this is reflecting data or experience from 2018; correct?

A. Yes, complete with all the potential inadequacies and shortcomings of our treatment system and the treatment infrastructure in 2018.

Q. And then it reflects also on the same page that the median length of stay to complete treatment was 71 days for regular outpatient treatment; correct?

A. Yeah. I mean, I, I would want to review this in more detail to discern what, quote/unquote, regular -- and those quotes are mine, of course -- but what regular outpatient treatment is compared to outpatient medication assisted opioid therapy. But, but, yes, I see the 71 days.

Q. And I, I probably inserted the word "regular." It says

71 days for outpatient treatment; correct?

A. Yes.

Q. And that would be the median length of stay for completing that treatment; correct?

A. I read this -- again, typically -- I mean, this is a seven-year, 80-page document. And, typically, I would review it in much more detail. But as I sit here today, I read this as stating that the median length of stay among discharges from treatment facilities that were included parenthetically in the TEDS sample that completed treatment was 71 days for outpatient treatment.

Q. And your assumption of your model is 365 days for outpatient treatment; correct?

A. No, that, that's -- I mean, when I estimate treatment capacity at a population level, I'm not assuming something or, or assigning a certain duration for any particular individual.

Q. But for the population in outpatient treatment, you're assuming 365 days of treatment; correct?

A. Well, I believe I include recommendations from the American Society of Addiction Medicine that recommend one year of treatment for individuals with, with, with opioid use disorder in ambulatory settings. But there's not a one-size-fits-all approach here.

Q. You also are estimating that the other treatment levels

that you include in your plan will provide for 245 to 275 days of outpatient care in addition to the higher levels of care that that population receives; correct?

A. Again, we're back to the matter -- and I know we discussed this during deposition -- but these are treatment slots, not individual people. So I'm estimating treatment capacity.

And in my report, I highlight -- or in the redress models I highlight what I believe are evidence-based recommendations about how long treatment should be. And, parenthetically, those lengths are much longer than the median lengths in the TEDS data in 2018.

Q. The treatment capacity or the slots would be meaningfully different under your plan if you assume, for instance, 71 days for outpatient treatment; correct?

A. It, it would. But, again, the 71 days reflects all of the inadequacies and shortcomings of our treatment system in 2018. I mean, I, I don't know -- I haven't encountered many clinical experts, of which I interact with many, that suggest that 71 days is kind of one and done for someone that has opioid addiction. It's a lifelong disorder. And people, especially people that have active addiction need long-term treatment.

Q. But 71 days is what actually happened in 2018; correct?

A. Within the sample -- I mean, I talked this morning

about reliability of datasets. And, you know, I -- you know, we'll just say briefly that datasets are fit for purpose and that the, this type of data and this type of statistic has to be interpreted with careful understanding of the sample and how the information was derived.

Q. Let me ask you to switch topics a little bit.

In your slides this morning you highlighted a 50 percent reduction in the OUD population over 15 years from roughly 8,000 to roughly 4,000; correct?

A. Yes.

Q. And you also predict a 50 percent reduction over 15 years in the number of deaths related to opioid overdoses; correct?

A. Yes.

Q. Are you aware, Dr. Alexander, that in 2017 Cabell County had 1,831 suspected overdoses?

A. I've looked carefully at the statistics. Sitting here as I do today at this moment, I'm not aware of the precise number.

Q. That's, that's totally fair. Let me, let me get you the exhibit so I don't just play a memory game with you.

MR. HESTER: May I approach, Your Honor?

THE WITNESS: Thank you.

BY MR. HESTER:

Q. So, Dr. Alexander, we've handed you MC-WV-2099.

MR. HESTER: Your Honor, this has been admitted into evidence already.

THE COURT: All right.

BY MR. HESTER:

Q. Dr. Alexander, have you seen this document before?

A. No, I do not recall having seen this document.

Q. And we've also handed you MC-WV-2100. Do you see that?

A. Yes, I do.

Q. And, so, if you, if you use the numbers in these two documents --

MR. HESTER: And, Your Honor, I should clarify 2100 has also been admitted into evidence.

THE COURT: All right.

BY MR. HESTER:

Q. These documents reflect 1,831 suspected overdoses in 2017; correct?

A. Yes, I believe so.

Q. And in 2018 it reflects 1,089 suspected overdoses; correct?

A. Yes. I presume from the titles and the language that these are people that are transported by EMS as suspected overdose. So I don't know -- would this include individuals in the field that are never transported to a hospital?

Q. Do you know Connie Priddy? You spoke with her I believe.

A. Well, I don't know what you mean by "know," but I believe I did speak with her, yes.

Q. You know who she is?

A. I, I spoke with 17 to 18 experts, I believe, or more. And I would request to refresh my memory regarding her precise --

Q. I'll see if this refreshes your memory. Do you recall that she's involved in transportation and emergency services in Cabell County?

A. I -- sitting here as I, I am today, I'm not -- I don't recall with certainty that's the case.

Q. Let's, let's just -- I'll ask you to accept these numbers for purposes of these questions.

So if you accept these numbers, if you look over at the 2019 listing, it shows 878 suspected overdoses; is that correct?

A. Yes. But I would request to know what the numbers represent.

Q. I believe it reflects suspected overdoses on emergency runs. I believe that's correct.

A. And, so, would it include people who are in the field, someone that refuses transport and is in their home and never goes to EMS?

Q. I, I can -- we'll work off of what Ms. Priddy testified to as to these. I'll just ask you to take these numbers at

face.

A. Okay.

Q. And, so, if we look at these numbers, this reflects that suspected overdoses in Cabell County decreased by nearly 50 percent from 2017 to 2019; correct?

A. Yes, whatever these numbers represent, the numbers do appear to be about half as large in 2019 as 2017.

Q. Let me ask you to look also at the, the overdose statistics. No, I'm sorry. If you look at Exhibit 2100 again -- I'm sorry. Let me, let me move on to another document then. Let me ask you to look at 2243.

MR. HESTER: Your Honor, may I approach?

BY MR. HESTER:

Q. I've got three for you this time.

Dr. Alexander, we've handed you three documents taken from the West Virginia DHHR overdose dashboard: 12243, MC-WV-2243 for 2017; for 2018 MC-WV-2239; and for 2019 MC-WV-2240. Do you see that?

A. Yes, I do.

Q. And the West Virginia DHHR statistics are another data source you consulted; correct?

A. Yes.

Q. And if you look at these data sources, you can see it lists 182 opioid-related overdose deaths in Cabell County in 2017; correct?

A. I'm sorry. Which of the three documents?

Q. I'm sorry. Start with the 2017. So that would be 2243.

A. Okay, 2243. Yes, I do see the 182. I see it on -- yes, I see it.

Q. And then if you look at 2239, it shows 137 opioid-related overdose deaths in Cabell County in 2018; correct?

A. Yes.

Q. And in 2019 if you look at 2240, it shows 97 opioid-related overdose deaths in Cabell County in 2019; correct?

A. Yes.

Q. So that would reflect from 2017 to 2019 a 46.7 percent decrease in opioid-related overdose deaths in Cabell County; correct?

A. Well, I haven't done the math. I think it would reflect an important reduction, although I believe in 2020 there's been an uptick again. So the trend has reversed and is now increasing.

Q. But I wanted to be focused on this time period, two-year time period, roughly a reduction of 50 percent in over -- in opioid-related overdose deaths; correct?

A. Yes, I believe so.

Q. Dr. Alexander, I wanted to focus on another aspect of

your report.

You spoke about your trend ratio in your testimony this morning. And your, your abatement plan relies on this trend ratio to develop an expected reduction in the relevant populations based on the implementation of the plan; correct?

A. Yes.

Q. And, so, you apply this trend ratio across a number of different populations in your plan; correct?

A. Yes.

Q. For example, you apply the trend ratio to the number of individuals with OUD in the Cabell/Huntington community to reflect a decrease in the size of the population over time that the abatement plan is implemented; correct?

A. Yes, I do.

Q. And, so, if we could go back again to Tab 2B in the, in the plan document. Let's just illustrate this.

So at the bottom of this page you have the population trend ratio and it starts at .96; correct?

A. Yes.

Q. And, so, we've talked before about Dr. Keyes' estimate of 8,225 people. And the way that you get to the starting population in 2021 is using the trend ratio, the number of .96; correct?

A. Yes.

Q. And then if we show the whole trend ratio over time, the trend ratio goes from .96 to .50. And that then in turn is the basis by which the OUD population trends down over the 15 years; correct?

A. Yes.

Q. And the trend ratio applies to a number of the different categories in the plan; correct?

A. Yes, it does.

Q. So as another example, one element of your plan proposes support for children living with parents with OUD.

And to estimate the number of children living with parents with OUD, you begin with a starting population of 1,620. Is that right? If we could go -- that would be -- I'll try to point you in the right direction, Dr. Alexander.

That would be families and children. And here you start off with a number of children living with parents with OUD of 1,547; correct?

A. Yes.

Q. And the trend ratio is applied there to reduce the number of children living with parents with OUD; correct?

A. Yeah. I mean, it reflects the reduction in the number of children, yes.

Q. So putting it another way, as the OUD population declines, then some of these other categories also decline pursuant to the trend ratio because there's fewer people

living with parents with OUD?

A. That's right.

Q. And you also used this, this OUD population for a number of the other programs. For instance, the number of people who need vocational training and job placement services is based on the OUD population and the decline in that population over the 15 years; correct?

A. Yes, I believe so.

Q. And you also applied this trend ratio to populations other than just the number of people with opioid use disorder. For instance, let me ask you an example.

The number of children that may need foster support services because you assume that the need will decrease as the OUD level decreases; correct?

A. I think that's the case, although to be sure, I would prefer to see the, see the data. But, but I'm, I'm -- I believe that's the case.

Q. Let's go to the first page again, the category listing for your plan. So that's the summary tab.

This is the category list that we worked through before, Dr. Alexander. Do you see that?

A. Yes, I do.

Q. And as I looked at your work papers, I believe it's correct that every category in the plan relies on the trend ratio except for 1A, 1B, 1C, 1D, 1F, 3A, and 3D. In other

words, if you take those out, I believe the trend ratio applies to all of the rest of the categories. Is that accurate?

A. I, I -- sitting here as I am today, I can't answer that question, although Table 1, which must be on maybe the next tab, does list the particular trend ratios and the instances in which they're applied.

So I think that would be a place where one could review the, you know, the assertion that you made. But, but that -- I would want to review that table to be sure.

Q. Well, the problem with Table 1 is it includes some target populations that are also going to be based on the trend ratio; correct?

A. Well, I don't know if that's a problem but, yes, it does.

Q. I -- problem just in answering my question simply. I was trying to find a simple way to answer the point.

And the point is simply to confirm that with, with the exception of a number of these categories in Number 1 that I listed, and with the exception of Category 3A and 3D, your trend ratio applies to the other categories?

A. I believe that it applies to most. And I would just simply want to confirm your query to give you a definitive answer. But the redress models certainly specify and allow for one to conclude when the trend ratio is applied or not.

Q. And there's a pretty simple way to do this by looking at the redress model, right, because there will be some sort of scaling down in any of the populations that are subject to the trend ratio; correct?

A. Yeah, yeah. And just at the risk of stating what may be clearer, the intuition is that one doesn't need to invest the same in year one as year 15, and that as the problem gets better, the investments that are going to be required are going to be less. They're going to decline over time.

So when I spoke this morning about building up a scaffolding and then taking it down, this is sort of another way of describing the application of the trend ratio.

Q. But as I read this off, you don't have any reason to disagree, do you, with my point that most of your categories in your plan are going to be subject to the trend ratio?

A. I believe that's right. I carefully reviewed the different categories, and there were some instances where I felt that there should be a continuous allocation of resources over the 15 years. But I believe in most cases I felt that, that the intensity of the intervention should be greater at first and then scaled down as morbidity and mortality from the epidemic recedes.

Q. And just to be clear again, it's pretty easy to tell because you can see in different populations that they're following this same scaling down pattern. You can tell from

the different populations. Correct?

A. Yes, correct.

Q. Dr. Alexander, you've provided expert reports with abatement models in at least three other opioid cases; is that correct?

A. I, I believe that's correct. I don't know the precise number, but I believe earlier this morning I shared the cases that I had been involved with.

Q. And you submitted a report in the Ohio case. I believe you may have referred to that as Track 1. And you submitted that in March, 2019. Does that sound right?

A. I do -- I'm sure that I submitted a report in Track 1. I don't remember the month or, frankly, the year at this point.

Q. Do you recall it was before you submitted your report in this case?

A. Yes.

Q. So, Dr. Alexander, let me just write up here "Ohio." And when you submitted your report in Ohio, you used something called a Markov model to determine the changes in the OUD population over time, right, to develop your trend ratio?

A. I believe that I used a national model not dissimilar from the model that we discussed this morning, an epidemiologic model of the opioid epidemic, Apollo.

Q. And Apollo is, is a model that you and your firm have developed; correct?

A. Yes.

Q. And, and your recollection is you used the Apollo model in Ohio; correct?

A. I believe I used a version of Apollo. I think we might refer to it as U.S. Apollo.

Q. And Apollo is a Markov model that your firm has developed to simulate the future development of an OUD population and other factors based on assumptions that you build into your model; correct?

A. Yes. We -- I've developed it with colleagues in order to be able to understand more about the future course of the opioid epidemic.

Q. And this model was developed by your firm; correct?

A. Well, it included -- I mean, it, it was developed by a large number of people, and not all of them are direct employees of my firm. But, but it was -- but much of the effort was through Monument Analytics, yes.

Q. And Monument Analytics is the firm that you co-founded and you own; correct?

A. Correct.

Q. And you used, you used this Apollo model in Ohio because you felt it would give you the best answers to the questions that you were posing about trend ratios and other

future developments; correct?

A. I mean, this was two or more years ago and I don't recall all of the thinking about this. What I, what I recall most clearly is that I had been engaged with plaintiffs and was asked whether I could assist with trying to understand future needs and -- of the opioid -- with respect to these communities. And I think based on that, I tried to apply incites from U.S. Apollo.

Q. And the model -- this Apollo model involves a series of formulas that project future OUD levels based on a number of inputs that you provide; correct?

A. Yes.

Q. And it involves dozens of variables and many dozens of inputs; correct?

A. Yes, although they're not all of equal importance. I mean, some variables are highly influential and others are not. So it's not as if it's a, you know, complete -- but, yes, it does involve many, many parameters.

Q. And, and you also test your Apollo model with sensitivity analyses to ensure that the model is robust and accurately predicting what you want to predict; correct?

A. There are standards steps that represent best practice and sort of state-of-the-art, state-of-the-science in developing these models. And one of them includes comparing the model performance to actual reality. We call that

calibration.

Q. And, so, you did extensive calibration and testing of the model to see if it reflected the assumptions you were making; correct?

A. I -- yes, I think that's a fair statement.

Q. You also submitted a report in the Washington Attorney General litigation involving opioids; correct?

A. Yes.

Q. That was around January, 2021; correct?

A. Again, unfortunately, I don't remember the month nor the year, but it was more recently than Track 1 of the MDL.

Q. And you recall that you submitted it after you submitted your report in this case; correct?

A. I -- believe it or not, I don't recall precisely the timelines, but I take your word for it.

Q. Do you have any reason to doubt that it was after you submitted your report in this case?

A. Well, I think the dates -- I mean, the dates are on the report. So I, I -- again, I just don't recall clearly the timeline of the varied reports that I've submitted.

Q. If I, if I showed you a copy of your report, would it refresh your memory on when you submitted it?

A. Sure.

MR. HESTER: I don't think I need to pass out copies, Your Honor, if I can just give him this to refresh

his memory. May I approach?

THE COURT: Yes.

BY MR. HESTER:

Q. Dr. Alexander, I've handed you a copy of your Washington report. Do you recognize that?

A. Yes, I do.

Q. And when did you file that?

A. January 20th, 2021.

Q. And that was in the Washington Attorney General opioid litigation?

A. It was for Washington State. I, I haven't followed closely who's, you know, who's bringing the case. But it was for the Washington State case is how I think of it.

Q. And, and you also relied on an Apollo model there to develop your trend ratios and, and your abatement plan; correct?

A. I believe that I did. I believe that I did.

Q. And that Apollo model was comparable to the one that you had submitted in Ohio, presumably refined with the passage of time?

A. I, I don't know what you mean by the word "comparable." The model is continually evolving and, and it's developed in a fit-for-purpose fashion for the typical -- for the specific community.

So Ohio Apollo I believe was a U.S. -- I'm sorry. In

the Ohio case, I believe it was U.S. Apollo. So it wasn't customized to the State of Ohio or Cuyahoga County.

And in the Washington case, I believe that it would have been customized to the State of Washington. So I wouldn't characterize the models as comparable.

Q. So, in other words, your point is you made specific inputs to address the issues in the specific community you were looking at in Washington when you submitted that Apollo model?

A. At least some, if not dozens. I don't recall without -- again, the model has 32 compartments, I believe, over 100 different transition probabilities and parameters, you know, many, many data sources. And I don't remember the degree to which it was customized to the State of Washington.

Q. But that was what you undertook to do to develop an Apollo model that had specific inputs related to Washington?

A. In all cases, my goal in these efforts has been to develop information that allows for me to provide to the parties at, at hand the most reliable evidence-based estimates that I can about the scientific questions that have been posed.

Q. And just to be clear, in both Ohio and in Washington, you were submitting abatement reports over a 10-year, 15-year period with categories that are comparable to some

we've discussed today; correct? Not identical, but comparable categories?

A. Can you say more about what you mean by the word "comparable"?

Q. Sure. I was trying to simplify. But you submitted, you submitted models in both Ohio and in Washington that had remedial plans looking out into the future; correct?

A. Yes, both had plans looking forward.

Q. And both had a number of categories that you identified and a number of treatment populations and other populations that would benefit from the different categories of remediation you were identifying; correct?

A. They did. I mean, the, the science doesn't change whether you're in Cincinnati or Seattle. So there's a reason why, why the abatement plans have some similarity to them.

Q. But you -- but they also had some differences. You tried to develop elements of your remediation plan that were specific to those communities?

A. Yes. They have important differences.

Q. Now, you also submitted another plan even more recently in Rhode Island; correct?

A. Yes.

Q. And, again, it's another remediation plan looking out over a 15-year period into the future; correct?

A. I, I don't know precisely if it's 15 years, but it is a forward-looking abatement plan, yes.

Q. And in that sense, an abatement plan like the Washington and Ohio plans that were looking ahead in a piece of opioid litigation; correct?

A. Yes.

Q. And, so -- and in Rhode Island is it also true you submitted an Apollo model as the basis for your trend ratio there?

A. I believe so.

Q. Now, so let's, let's go back now to your report in this case.

So you submitted your report in this case in August, 2020. So it was after your Ohio report and before your Washington and Rhode Island reports; correct?

A. Well, I believe so. I mean, it might be helpful for me at least to have the precise dates. But I'll -- again, I'll take your word for it. It sounds correct.

Q. Would it refresh your memory on the dates if I gave you these reports?

A. I'm, I'm happy just to proceed assuming that the report in this case was between Ohio and Washington. I see a space there.

Q. There is a space there. You read my mind. But I wanted to confirm that you're comfortable with that. I can

give you the documents if you would like if that doesn't accord with your memory.

Does it accord with your memory that West Virginia came in after Ohio but before Washington and Rhode Island?

A. I would prefer to see the reports and the dates if that's possible.

Q. Okay, will do.

MR. HESTER: May I approach, Your Honor?

THE WITNESS: Thank you.

BY MR. HESTER:

Q. I'm getting you one more.

A. Thank you.

Q. So, Dr. Alexander, we've handed you these different expert reports, the ones submitted in Ohio, Washington, Rhode Island, and in this case in West Virginia.

Does it refresh your memory that the Washington and Rhode Island reports were served after your report in this case?

A. So Washington was January, 2021. Huntington was August, 2020. The Ohio case was definitely first. And Rhode Island is the report that you've provided me?

Q. I believe so.

A. Yeah. And this is June, 2021.

Q. Okay.

A. Okay, yes. Thank you.

Q. So in this West Virginia litigation before this Court, if you look at your, your remedial plan, if you go to -- let me see if I can point you to the right page. I'm sorry, Dr. Alexander.

What I'd like to point you to is your report itself. Your report from this case is up there; correct?

A. Yes, I believe so.

Q. And if you look at Page 8 of the document, Paragraph 18, there's a sentence that begins, "Based on the sweeping scientific support for the abatement interventions I have proposed herein, many of which have already been implemented in the Cabell/Huntington community, I believe that coordinated, all-encompassing efforts that respond to the evolving epidemic could reduce cumulative opioid overdoses and opioid-related harms by 50 percent over 15 years."

Do you see that?

A. Yes, I do.

Q. And that sentence is followed by Footnote 58. Do you see that?

A. Yes.

Q. And Footnote 58, if you look at that, is a citation to a paper written by Homer and Wakeland entitled "The Dynamic Model of the Opioid Epidemic with Implications for Policy."

Do you see that? That's the source that you cite for Footnote 58.

A. Yes, I see that.

Q. And if you could look at your redress model now, and if you turn into the fourth page, there's a discussion on the fourth page of the intervention population.

And it begins by saying, "For some categories, I applied a trend ratio that represents the expected reduction in relevant populations based on the implementation of the abatement plan I propose."

Do you see that sentence?

A. Yes.

Q. And that's what we've been talking about already, correct, that the trend ratio is the basis by which you reduce relevant populations as the abatement plan is implemented; correct?

A. Yes.

Q. And then you go on in the next sentence to say, "Homer, et al., modeled the expected impact of a bundle of interventions."

Do you see that?

A. Yes, I do.

Q. And you list, you list four interventions that were modeled by Homer. Do you see that?

A. Yes, reducing prescription dosage, cutting diversion, increasing treatment, and increasing naloxone use.

Q. And again you cite -- and you have a footnote there

where you refer to Homer. And, again, it's, it's the Homer and Wakeland paper that's also cited in your report; is that correct?

A. Yes.

Q. So you cite this Homer paper as the support for your conclusion that your intervention will reduce the OUD population over 15 years; correct?

A. Can you tell me again, please, in my report the paragraph that Homer's referenced?

Q. It's Paragraph 18.

A. Yes.

Q. So I've written on the board "Homer" there. In this case -- in this litigation you did not refer to an Apollo model in your report; correct?

A. I would -- I mean, there are 650 references or so in my report. I don't know what's -- if, if I referred to Apollo or not in that.

Q. Well, I'll give you the time to look. But I can tell you that it's not mentioned in the report. Does that sound correct to you?

A. Again, I would, I would want to review my report to know if it's in there or not. But, but without reviewing those references, I can't tell you for sure if it's there or not.

Q. Well, you did not build an Apollo model for this case;

correct?

A. Well, that's, that's true. That's definitely true. But there's a big difference between customizing a West Virginia Cabell Apollo on the one hand and referencing or using the knowledge that I have from my work modeling the opioid epidemic on the other.

Q. So let's be clear. In Ohio you submitted an Apollo model. In Washington you submitted an Apollo model. And in Rhode Island you submitted an Apollo model. Correct?

A. In Ohio I used, I believe, a U.S. model of the opioid epidemic. And in Washington and Rhode Island I believe I submitted customized models for those communities. And I also have been involved in litigation where I didn't use Apollo models.

So there's, there's nothing constant about my use or non-use of an Apollo model. And I also use the information that I have from my work with Apollo whether or not I'm actually -- whether or not I'm actually building a customized model for a specific community.

Q. But you did not build a customized model for Cabell/Huntington; correct?

A. I -- that's correct, not as part of this case. I may well have done some modeling with my team, but I did not submit a, a Cabell Apollo as part of my submitted materials.

Q. So if we could go back to the, to the discussion at

page -- at the fourth page of your redress model, the intervention population. I wanted to point you again -- you have a single sentence that describes the Homer findings, correct, where you say, "Homer, et al., modeled the expected impact of a bundle of interventions to mitigate the opioid epidemic and estimated a reduction of approximately 24 percent in the number of individuals with opioid use disorder, 4 percent in the number of opioid overdoses, and 18 percent in opioid overdose deaths over a period of 10 years."

Do you see that?

A. Yes, I do.

Q. And that's the only sentence where you discuss the Homer findings; correct?

A. Well, I -- you know, again, my report is, I don't know, 125 pages or something. I don't know if there's other sentences where I discuss the Homer findings.

Q. I can represent to you that it's not discussed anywhere else. Does that sound correct to you?

A. I think I'm willing to take your word for it, yes.

Q. So I'm going to write on the board here -- sorry, I'm slow with my writing.

When you submitted Apollo models -- for instance, when you submitted an Apollo model in Washington or an Apollo model in Rhode Island, you provided an extensive discussion

of the, of the model; correct?
A. Yes. I mean, the model is -- I'm not sure how extensively -- I mean, at a minimum I would have described the rationale for the model and how to interpret it. And then the model also has a technical appendix.
Q. So, so a technical appendix to describe the elements of the model, all of the inputs that you put into those specific Apollo models; correct?
A. Yes.
Q. Now, as we've just discussed, the Homer paper model, the 24 percent reduction in OUD over 10 years; correct?
A. Yes, based on the assumptions that they made and the 10-year period from 2020 to 2030, so much smaller than the estimate that I suggest.
Q. And, so, you didn't just adopt those Homer inputs as we've been discussing today. You, you concluded a 50 percent reduction over 15 years as compared to a 24 percent reduction over 10; correct?
A. Well, it would have been inappropriate for me just to adopt these statistics. As I discussed this morning, you know, the interpretation of data has to be informed by the context in which the data is derived, the methodologies used, and the like. So I did not just directly adopt and paste in the statistics from the Homer paper.
Q. And, in particular, if we look again at Page 4 of your

redress model, you say, "Given that I propose more comprehensive and coordinated interventions, I project they will reduce the number of individuals with OUD by 50 percent over 15 years and I scale select populations accordingly."

Do you see that?

A. Well, I do. And I guess if I were writing this today, I might expand further on the, you know, the rationale for the estimate that I provide.

But the estimate that I provide is supported by a lot of different modeling and assessment of the impact of different interventions that have been undertaken to address the opioid epidemic.

Q. Well, let's just parse this sentence first where you say, "Given that I propose more comprehensive and coordinated interventions."

You're referring there to more comprehensive and coordinated interventions than Homer had modeled; correct?

A. Yes.

Q. And that is the only explanation you provide in your report for modifying Homer's conclusion, right, that one sentence?

A. I, I use Homer as, as a reference to support prior work that has attempted to estimate the impact of interventions to abate the opioid epidemic.

There are other -- there are other models, many other

models that have been developed and that have been used to estimate the impact of different abatement interventions, as well as many studies, many of which I referenced in my report.

So the Homer study is not the totality of scientific information that I use in order to arrive at the estimate that I do, which is that with implementation of these measures, we can reduce morbidity and mortality by 50 percent over 15 years.

Q. The Homer study is the only one you cite in this report; correct?

A. No, I cite many other reports that are relevant to that estimate.

Q. The Homer model is the only systems model you cite; correct?

MR. ACKERMAN: Objection, asked and answered.

THE COURT: Overruled. I don't think he's answered the specific question, has he, Mr. Hester?

MR. HESTER: I don't think he has.

THE COURT: Okay.

THE WITNESS: I would need to look at the references to see if there are other systems models or Markov models.

BY MR. HESTER:

Q. In this place in your redress model, Homer is the

only one you cite; correct?

A. Yes, that's correct.

Q. And, and then as we've just discussed, there's one sentence where you describe how you modify the Homer findings. There's no other sentence.

A. Again, you know, I would want to review the entirety of my report to be sure that that's the case. But, but I don't have a reason sitting here to be confident that it's otherwise.

Q. So I've written on the board "one sentence modified."

MR. ACKERMAN: Your Honor, I'd object to that. I think the witness has testified that his report cited other models. I think that misrepresents the witness's testimony.

MR. HESTER: Your Honor, there's one -- I'm putting the witness's redress model in front of him. There's one sentence that's --

THE COURT: Well, he said he had no reason to doubt what you said or words to that effect. So I'll let him go ahead. Overruled.

BY MR. HESTER:

Q. So, Dr. Alexander, we've discussed before that the Homer, the Homer estimate was for a 24 percent reduction in OUD level; correct?

A. Yes, far less than the estimate that I suggest.

Q. And the Homer estimate -- the Homer model was also

based on a 10-year period, not a 15-year period; correct?

A. Yes. And there may have been many other features of the Homer model that I don't have -- I don't recall that would be relevant to interpreting these statistics.

Q. The Homer model is not your model. It's not the Apollo model. Correct?

A. Correct.

Q. And, so, you didn't test the Homer model based on the additional assumptions and interventions that you're proposing here; correct?

A. I, I didn't have the Homer model in hand, if that's what you're talking about, and modify it. You know, there are -- there is good evidence and it is relatively straightforward to model some interventions.

For many other interventions, there's qualitative evidence and clear and convincing evidence of benefit. But it is another step entirely to derive the specific parameter and plug it in. It's not just like plug-and-play I guess is my point.

Q. Again, I'm probably stating a truism, but let's see if we communicate on this.

The Homer model is not your model. You didn't have access to it to test it. So you couldn't test the additional interventions to see how they worked under the Homer model?

A. Right. I, I didn't use the Homer model and modify it and try to identify inputs for each of the 15 or 20 different abatement categories, nor have I done that, frankly, with Apollo.

Q. So I'm going to write "did not test." So, so the Homer paper was written by Jack Homer and Wayne Wakefield [sic]. Do you see that?

A. Yes.

Q. And let me actually -- I think I'll give you a copy of the Homer paper. That will be easier for us to talk about.

MR. HESTER: May I approach, Your Honor?

BY MR. HESTER:

Q. And, Dr. Alexander, we've handed you what's been marked as MC-WV-2234. Is this the Homer and Wakeland paper that you cite in your report?

A. Yes.

Q. And you see that Mr. Homer is listed -- if you look at the second page, he's listed as being associated with Homer Consulting; is that right?

A. I'm sorry. What's on the second page?

Q. I could be leading you astray. I guess on the first page -- do you see where it says -- right under the heading it's entitled "A Dynamic Model of the Opioid Drug Epidemic with Implications for Policy."

And then there's a footnote right under the name of

Jack Homer and it says "Homer Consulting, Barrytown, New York."

Do you see that?

A. Yes, I do.

Q. Are you familiar with Homer Consulting?

A. No, I'm not.

Q. Are you aware that it's a sole proprietorship of Jack Homer?

A. No, I am not.

Q. Do you know that Mr. Homer is not an epidemiologist?

A. No, I'm not aware -- I mean, as I sit here today, I'm not aware of whether he is or is not. You know, at the time that I reviewed this paper, and it has been a while since I've looked at it, you know, I typically do consider the background and training of authors, as well as many other factors, in interpreting scientific reports, including the journal that the paper is in, the authorship team, prior publications that they have had, and so on and so forth.

Q. Do you know who Jack Homer is?

A. No, I do not.

Q. So let's look at who funded this paper, if you could turn to the financial disclosure and funding source, which is on the last page of text.

And it says here, "The initial version of the model described in this paper was developed under a contract

funded by Herc Litigation Services LLC and the law firms of Levin Papantonio and Baron & Budd."

Do you see that?

A. Yes, I do.

Q. And it states that consulting fees were paid to the authors. Do you see that?

A. Yes.

Q. Were you aware that consulting fees were paid to the authors by the law firms of Levin Papantonio and Baron & Budd?

A. I don't -- as I sit here today, I don't remember what I was aware of when I reviewed this. But I typically do review and do consider the funding sources of, of research that I examine just as I consider many other factors in interpreting the, the adequacy of the work.

The one other thing I'd just like to point out is that while this may have been the paper that I cited to support the estimates that I made, my estimates and my recommendations for the community are also informed by the totality of my professional experience, which includes review of and involvement in and consideration of any number of other models and estimates of impacts, including many, many peer-reviewed manuscripts that may not be actual models of the epidemic but, nevertheless, are cited as part of the 650 odd references that I include in my report.

Q. Are you aware that the first law firm listed here as funding this paper, Levin Papantonio, represents the plaintiff, the City of Huntington in this case?

A. As I sit here today, I'm not aware of that. Again, I don't know -- I don't recall what I was aware of or how extensively I investigated the relationships of varied parties when I used this and referenced it in my report.

Q. Are you aware that the second law firm listed as funding this paper, Baron & Budd, represents the plaintiff, the Cabell County Commission in this case?

A. Again, I mean, my work is focused on the science --

Q. Let me ask you to answer the question.

A. What --

MR. ACKERMAN: Objection, Your Honor. I'd ask that the witness be allowed to answer. He was interrupted.

MR. HESTER: He wasn't answering my question.

THE COURT: Yeah. Answer the question if you can, Dr. Alexander.

THE WITNESS: Of course. I wasn't aware. My focus is on the science. But, generally, when I review manuscripts, I do pay attention to the funding sources as I interpret the information.

BY MR. HESTER:

Q. Well, Dr. Alexander, let me ask again. Are you aware that the second law firm listed as funding this

paper, Baron & Budd, represents the plaintiff, the Cabell County Commission in this case?

MR. ACKERMAN: Objection, asked and answered.

MR. HESTER: He hasn't answered yet.

MR. ACKERMAN: He said, "I wasn't aware."

THE COURT: Overruled.

THE WITNESS: As I said, at this point, today I, I don't recall what I was aware of when I used this paper in my report. I'm not -- today I'm not aware of the, the funding relationships of varied law firms and the parties.

BY MR. HESTER:

Q. But are you aware that the second law firm listed as funding this paper, Baron & Budd, represents the plaintiff, the City -- the Cabell County Commission in this case? Are you aware of that?

MR. ACKERMAN: Objection, asked and answered.

THE COURT: Overruled. I don't think he answered it. That's a "yes" or "no" question.

THE WITNESS: Well, I, I am also just trying to underscore my approach to interpreting scientific information, but I'm not aware of those funding relationships.

BY MR. HESTER:

Q. Did you know that Jack Homer listed this paper on his website as a client project to assess economic

damages from the opioid epidemic for two plaintiff law firms involved in national litigation against opioid manufacturers and distributors? Are you aware that he listed that on his website as a client project for two plaintiff law firms?

A. I'm not aware of that.

Q. Let me ask to put up on the board --

MR. HESTER: May I approach, Your Honor?

MR. ACKERMAN: Your Honor, we have an objection to the use of this document which isn't marked in any way, didn't appear on an exhibit list, and was never disclosed. It's a violation of the exhibit stipulation.

MR. HESTER: It's pure impeachment, Your Honor. I view it as pure impeachment. He said he wasn't aware of this.

THE COURT: Well, if it's pure impeachment, I'll allow it. Go ahead.

MR. HESTER: May I approach, Your Honor?

THE COURT: If it's a good faith basis to ask him questions designed to impeach his testimony he's given here today, I'll let you do it.

MR. HESTER: Yes.

BY MR. HESTER:

Q. Dr. Alexander, let me ask you to look at Page 13 of this document, please.

What we've handed you is a screen shot of the Jack Homer Consulting website. And there's a heading "For Corporate Clients."

Do you see that?

It says, "Assessing economic damages from the opioid epidemic."

Do you see that?

A. Yes, I do.

Q. And it says, "Client: Two plaintiff law firms involved in national litigation against opioid manufacturers and distributors." And then it lists the name of the publication that's cited in your report.

Do you see that?

A. Yes.

Q. And were you aware that Jack Homer had listed this paper as client project for two plaintiff law firms?

A. Again, I don't recall at the time that I was working closely with this paper and others to what degree I pursued these types of relationships.

But I customarily, when I'm reviewing a peer-reviewed manuscript, pay attention to many different things. And some of the most important are who's publishing it, where is it published, how adequate do I believe the peer-review is, and what are the funding sources. Those aren't the only four, but those are the big four.

So I believe that at the time that I reviewed this, I may well have been aware of some degree of the funding, but I don't recall if I, you know, if I examined this website in particular.

Q. And, so, in particular, you were not aware that Jack Homer listed this as a client project for two plaintiff law firms?

A. Again, I don't recall how extensively I examined this when I used the paper. I think it's unlikely that I would have, you know, reviewed an author's website to examine at this level of detail. So my guess is that I was not aware of it, but I don't recall for sure.

Q. I've written on the board "prepared for two plaintiffs' law firms."

Dr. Alexander, I have no further questions. Thank you.

A. Okay. Thank you.

THE COURT: Ms. Hardin.

MS. HARDIN: I have no questions, Your Honor.

THE COURT: Is there any redirect, Ms. Singer?

MS. SINGER: Yes, there's probably going to be about 20 minutes, 15 minutes, Your Honor. And I know we will have to have Dr. Alexander back likely tomorrow on the evidentiary issue or have him hold over.

I'm happy to print out the questions and get started. I probably need about three minutes to do that with the

Court's permission, or tomorrow morning as Your Honor prefers.

THE COURT: Well, if you say 20 minutes, that's probably going to be an hour; right?

MS. SINGER: No, that's Mr. Hester's time, Your Honor. I stick to mine.

MR. HESTER: I did pretty well today, Your Honor.

THE COURT: Well, you did better.

MR. HESTER: I did better.

THE COURT: My suggestion is -- it's almost -- it's almost 10 till the bewitching hour. Why don't we pull the plug on this and come back and you can finish tomorrow.

Is that all right with you, Mr. Hester?

MR. HESTER: That's fine by me, Your Honor.

As a matter of housekeeping, we'd like to mark this board as a demonstrative exhibit. I think it's Exhibit 10 demonstrative.

THE COURT: All right. You may do so.

All right, I'll see everybody at 9:00 in the morning.

Can you come back, Dr. Alexander?

THE WITNESS: Of course, of course.

THE COURT: Thank you very much.

(Trial recessed at 4:47 p.m.)

CERTIFICATION:

I, Ayme A. Cochran, Official Court Reporter, and I, Lisa A. Cook, Official Court Reporter, certify that the foregoing is a correct transcript from the record of proceedings in the matter of The City of Huntington, et al., Plaintiffs vs. AmerisourceBergen Drug Corporation, et al., Defendants, Civil Action No. 3:17-cv-01362 and Civil Action No. 3:17-cv-01665, as reported on June 28, 2021.

S\Ayme A. Cochran
Reporter

s\Lisa A. Cook
Reporter

June 28, 2021
Date

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